

Regulating risk

A study of Basel II and the Copernican turn to
financial regulation

Ingrid Hjertaker



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'Is it probable that probability brings certainty?'

Blaise Pascal, *Pensees*, 1670, p. 203

...in economics and in other disciplines that deal with essentially complex phenomena, the aspects of the events to be accounted for about which we can get quantitative data are necessarily limited and may not include the important ones.'

Friedrich A. Hayek, *The Pretence of Knowledge*, 1974

Foreword

This MA-thesis is my own, and along with it any faults it may contain. For any good, however, credit is due many:

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List of Acronyms

AMA	Advanced Measurement Approach
BCA	Basel Capital Accord
BCBS	Basel Committee for Banking Supervision
BIS	Bank for International Settlements
BSM	Black-Scholes-Merton model for option pricing
CAPM	Capital Asset Pricing Model
CAR	Capital Adequacy Requirement
CBOE	Chicago Board of Options Exchange
CP	Consultative Proposal
CRO	Chief Risk Officer
EMH	Efficient Market Hypothesis
FCIC	Financial Crisis Inquiry Commission
GARP	Global Association of Risk Professionals
IIF	Institute for International Finance
IMF	International Monetary Fund
IRB	Internal Ratings Based
ISDA	International Swaps and Derivatives Association
LTCM	Long Term Capital Management
MPT	Modern portfolio theory
NRSRO	Nationally Recognized Statistical Rating Organization
OECD	Organization for Economic Cooperation and Development
OR	operational risk
OTC	over-the-counter
RAROC	Risk-adjusted return on capital
RCA	Regulatory Capital Arbitrage
ROCAR	Return on capital at risk
VaR	Value at Risk
WTO	World Trade Organization

Chapter 1 Introduction

1.1 The Copernican turn to financial regulation

The crisis that originated in the US subprime market and evolved into a global financial meltdown in the fall of 2008 has brought the topic of financial regulation to the fore, not merely for policy-makers, but also for social scientists. This study examines the changes to the international regime for financial regulation that occurred in the two decades prior to the crisis. The policy guidelines issued by the Basel Committee on Banking Supervision (BCBS) at the Bank for International Settlements (BIS) arguably defines this regime. The shift from the first Basel Capital Accord (BCA) to Basel II in 2004 represents a radical change to regulatory policy: Basel II permits banks to use internal risk models to calculate their own risk exposure and thus the amount of capital they are required to keep. With Basel II, capital requirements no longer target the real investment portfolios of financial institutions, but instead their internal risk model-estimation of the risk level on that portfolio. Basel II furthermore grants a greater role to market and operational risk in the calculation of capital requirements, which have traditionally focused on credit risk.¹ This new methodological approach to regulation emphasizes risk over uncertainty, displaying great optimism with respect to the possibility of quantifying all forms of financial risk.² In Basel II, financial markets are seen as a world of “known unknowns” rather than “unknown unknowns”. In permitting financial institutions to determine their own level of risk, regulators are using as policy tools risk models over which they have no formal ownership and little control. Therefore, Basel II represents a “copernican turn” to financial regulation (Izquierdo 2001: 74), arguably also to regulation in general. At the time of writing, Basel II is in the process of being replaced by the new Basel III, which is to be fully implemented by 2019. While Basel III drastically raises the capital ratio for banks, the methodological approach pioneered in Basel II remains largely intact within the new framework. Therefore, a study of Basel II remains relevant and important.

The conventional answer to Basel II is to view it as a case of regulatory capture by a well-organized and resourceful financial sector (e.g. Lall 2009), Basel II is even viewed as a

¹ The risks facing financial institutions are typically divided between credit, market and operational risk. Credit risk is the risk of a borrower (individual, corporate or sovereign) defaulting. Market risk is the risk stemming from market developments such as interest rate changes. Operational risk is the risk from failed internal, technical systems, or mistakes on part of employees.

² In this thesis, the term ‘quantitative’ in relation to risk and risk management denotes the precise, numerical measurement of risk.

‘perfect example’ of such capture (Tsingou 2009). This study aims to go further and examine the role of economic ideas in this policy change, examining Basel II instead as a case of intellectual regulatory capture. It seeks to explain how new ideas about risk came to play a role in the design of policy. A set of ideas about risk are traced from their academic origin, through their expression in financial market risk management practices, and to their effect on regulatory policy. The proposed inroad to identifying these complex processes is via the concept of *risk-understanding*, which I define as the way in which a decision-maker deciphers her environment in terms of risk and uncertainty. The main argument put forth is that Basel II must be seen as the result of a changed risk-understanding on behalf of financial regulators, in which they came to see financial markets as characterized by risk rather than uncertainty. This shift in risk-understanding was partly brought about directly from a set of ideas about risk and financial portfolio diversification from neoclassical finance theory. The greater influence worked indirectly, however, through the ways in which these ideas changed the risk management practices in the financial sector. Financial regulators, observing these developments, came to believe that the financial sector had improved its ability to manage risk. This regulatory belief was subsequently used strategically by the sector lobby in its efforts towards securing beneficial policies.

Why is this not only an interesting, but also a very important topic of study? This is because financial markets matter a great deal for the material welfare of citizens in both the developed and developing world. This is true not only in times of crisis, when failing financial markets cause real economic disasters. When they function, financial markets represent the arena for much of the saving, lending, and insurance activity undertaken by a society’s citizens. National and global financial markets operate under a set of rules and regulations. Given the central role of finance in the world economy, these rules are extremely important, and the actors that make them are correspondingly powerful. Despite their lack of formal supranational authority, the policy guidelines issued by the Basel Committee³ – composed of central bank governors and heads of financial services authorities from what is now 27 countries – has considerable influence on national regulatory policy. The first of the regulatory frameworks issued by the BCBS, the BCA, was created in 1988 with the intention to harmonize national policy for the regulation of internationally operating banks. The policy

³ Until 1999 the BCBS had called itself the *Basle* Committee for Banking Supervision, but then switched to the German spelling, *Basel*. Tarullo (2007:2) puts this name-change down to the increased power of Germany contra France in the Committee.

recommendations from Basel were implemented far beyond this intended scope. Basel policy was implemented in countries that were not members of the Committee, and this policy was applied to domestic as well as international banks and also to other types of financial institutions. Even Cuban banks operate by Basel rules. Given this broad policy diffusion, the Basel Committee ‘effectively sets the rules for everyone’ in the world economy (Underhill 2005). Despite their importance, the Basel guidelines excite little public interest or academic attention. Yet, if the premises above are accepted, the processes that lead to the design of this very important policy should be of great interest to students of politics and political economy.

1.2 Research question and design

This study examines the causes of the radical change to financial regulatory policy, represented by the completion and national implementation of Basel II. The pre-crisis regulatory regime is broadly recognized to have been influenced by a set of ideas from modern finance theory (e.g. Taleb 2007; Roubini 2008; Triana 2009; Eichengreen 2010). This study seeks to go a step further and examine the mechanisms through which this influence may have occurred.⁴ These academic ideas were intended as models for pricing options and optimally constructing portfolios. Their influence on regulatory policy – aimed at maintaining the systemic security of the financial system – is therefore far from given and well worth examining. Through invoking the concept of regulatory *risk-understanding*, we are better able to understand the mechanisms through which these ideas came to affect the design of regulatory policy in the period in question.

The research question is twofold. The primary question sought answered is *how new ideas about risk came to play a role in the design of Basel II*. In answering this, I also examine *how a new and particular risk-understanding emerged* amongst regulators and actors in the financial markets. Using policy documents and secondary literature, the process through which economic ideas were diffused, transformed, and came to receive their regulatory expression in the second Basel framework is traced and analyzed as a process composing four central parts: 1) the inherent properties of these ideas that fostered a particular understanding of risk, 2) the ways in which these ideas changed the risk management practices of the financial sector, 3) the regulatory reaction to these developments in the financial sector, causing regulators to reexamine their methodology, and finally 4) the strategic use of these

⁴ The problematic assertion that ideas can have causal effects is discussed in chapter 2.5.

ideas by the financial sector lobby in their campaign for beneficial regulation. The choice to separate and deal with these four features in turn is not tantamount to claiming that these processes are empirically separable in a similar manner. This is an analytical choice in order to be able to gauge the complexity of the dynamics involved. Although parts of the process may to some extent be empirically distinguishable in terms of sequencing, there are significant degrees of overlap and feedback that complicate the picture. The causal model is illustrated in figure 1.1.

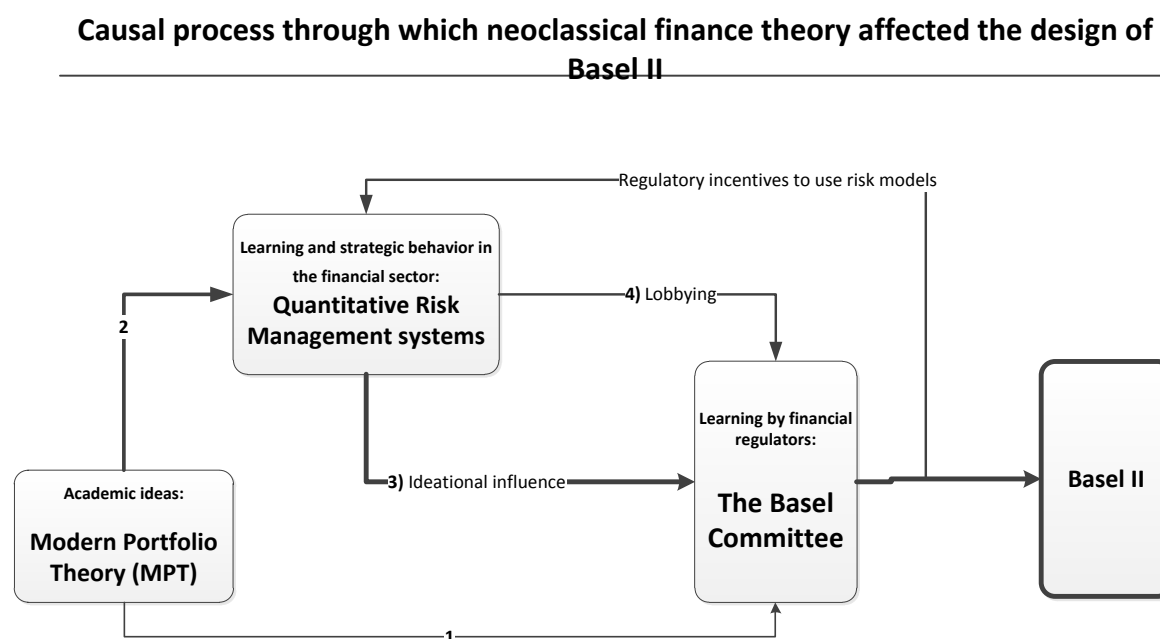


Figure 1.1 Causal model.

1.3 The argument in brief

This thesis finds the explanation for the radical shift in policy that took place in the two decades prior to the financial crisis of 2007-09 in the significant and qualitative change in the regulatory risk-understanding of financial markets. The origin of this shift is found in the theories of portfolio diversification and option pricing within neoclassical finance theory. Although part of the ideational influence here was direct from these theories to the economists designing policy, the stronger channel of influence worked indirectly, through the incorporation and transformation of these ideas into the broader risk management practices of

the financial sector. New risk management practices worked in conjunction with the strength of the sector lobby to re-negotiate the relationship between the sector and its regulators. These complex processes combined to alter how regulators collectively understood their environment in terms of risk and uncertainty.

The origin of this altered risk-understanding is traced to a set of theories from modern portfolio theory (MPT) in economics. The inherent properties of these theories were conducive to a particular way of understanding risk, beyond the limited scope of the theories themselves. The common ground for these theories is a conceptualization of risk as the volatility of investment returns. As such, risk was treated as a quantifiable component of investment decisions. Furthermore, the diffusion and popularity of these ideas contributed to their legitimacy in regulatory circles. Not only were many of the academics awarded ‘Nobel prizes’ for their efforts, but these risk models were broadly employed in the financial sector. The combination of their inherent properties and their successful diffusion in financial markets enabled these ideas to fundamentally change how both actors in the market and their regulators viewed risk and the task of managing it.

The ways in which these ideas were used (and abused) in the risk management practices of financial institutions constitute the stronger causal path in this case. The MPT models for portfolio diversification and option pricing represent techniques for risk *calculation* in investment decision-making. Upon introduction and incorporation into financial sector practices, these techniques were subsumed into broader systems of risk *management*, thereby applying the insights from MPT beyond their intended scope. The shift from calculation to management represents a significant transformation process, in which several institutional factors played a part. The spread of the *Value-at-Risk* model in particular illustrates the desire for a broad organizational tool to serve management needs. In the development of these risk models, the benefits to organizational communication and managerial control were seen to outweigh the problems of accuracy arising from the use of these models. The social processes involved in the development of risk management technology are important to analyze in order to understand how inaccuracies, problems, and even full-scale system breakdowns were interpreted and dealt with.

As a policy group – and in their capacity as economist-trained bureaucrats – financial regulators constitute a good example of an *epistemic community* with an authoritative claim

on knowledge in their field (Haas 1992). When the Committee members learned the virtues of the increasingly sophisticated risk management practices of the financial sector, they altered regulatory policy in accordance with their new beliefs. The regulators believed the financial sector had improved its ability to manage risk, and furthermore that these risk management practices were suitable also as regulatory tools for the management of systemic risk. This study focuses on the role of ideas in policy and on social learning. However, this ‘sociological’ approach does not preclude the possibility of strategic behavior by agents. The conflicts of interest that pertain to financial regulation are therefore also examined, in particular with respect to the incorporation of risk models into regulatory policy. The financial sector used these ideas and the broad legitimacy bestowed upon them as a way to redefine its relationship to regulatory institutions, and to the BCBS in particular. When regulators sought to use banks’ internal risk models as regulatory instruments, regulators understood sector and regulatory interests to be more or less aligned. As regulators had little knowledge of these risk management systems, representatives from the financial sector were included in the Basel II policy-making process as ‘experts’ providing information and advice. Labeling the financial sector as risk management experts had the effect of blurring the role of the sector as an interest group, and obfuscating the conflicts of interest involved. With the BCBS having learned the new norms of sophisticated, quantitative risk management practices, the sector was able to successfully utilize these ideas and the language associated with them in their efforts at achieving beneficial policy.

1.4 Risk-understanding and policy making – the broader context

Risk, in the commonsensical meaning of the term, refers to potential future threats or adverse consequences of actions to something or someone. In this commonsense use of the term, risk is predominantly seen as something negative. For financial markets, risk plays a somewhat different role as it is also – and perhaps just as often – defined in positive terms as an opportunity for profit. Subsumed under this broad conception of risk, whether positive or negative, with respect to financial markets or other social phenomena, are several different categories of phenomena distinguishable by the type and amount of information actors possess. The most common distinction to make, which is discussed in section 2.3, is between risk and uncertainty, where the former is sometimes labeled ‘risk proper’ to distinguish it from risk in the broader meaning. A situation is defined by risk (proper) if the range of possible outcomes is known and probability estimates may be attached to these outcomes.

When a situation is defined by uncertainty, in contrast, such estimations are not possible. In other words, this is a distinction between the “known unknowns” and the “unknown unknowns”. An interpretation of the environment in terms of risk and uncertainty will underlie much of human decision-making, though it is rarely explicit or even conscious. The more centrally risk features in the undertaking, however, the more conscious and explicit we can expect these interpretations will be. Few decisions involve more conscious risk estimation than financial ones, and few policy areas are more explicitly concerned with risk than financial regulation.

There are two aspects of these concepts that matter in relation to the study of policy-making. First, there is the issue of what *actually* characterizes the environment. In a world of pure risk (proper), even social phenomena are characterized by linear causality and a normal distribution, which makes it possible to construct probabilities for the future by sampling from past events. In contrast, a world of uncertainty features emergent or evolving causation and has a frequent occurrence of extreme events, rendering social phenomena unique and difficult to predict. Secondly, there is the issue of how agents *perceive* their environment in terms of risk and uncertainty. In other words, this concerns what kind and amount of knowledge actors think they have of the environment in which they make decisions, and less about the objective qualities of that environment. It is here the concept of *risk-understanding* enters. Risk-understanding is introduced as a term to denote the way in which a decision-maker deciphers her environment with respect to possible future events and what kind and amount of information is available to her. The research questions address the changing risk-understanding of financial market actors and regulators, and its effects on policy. The development and legitimacy of quantitative risk management are poignant expressions of a belief in financial markets as being inherently ‘risky’ rather than uncertain. The failure of the new regulatory regime – a regime based explicitly on these sophisticated risk management techniques – to predict or contain the financial crisis is indicative of a lack of coherence between the perceived and actual characteristics of financial markets. While this discrepancy and the many causes of the financial crisis are not the focus of this study, the link between Basel II and the crisis is nevertheless important, and will be discussed in section 4.5.2.

To summarize, the more general argument that serves as a premise for this thesis is a fairly simple one: The ways in which regulators decipher their environment and regulatory subject with respect to risk and uncertainty matter for what kind of regulatory policy they produce.

The regulators' risk-understanding will affect which policy means are considered legitimate, appropriate and sufficient in the regulatory endeavor. Arguing that an altered risk-understanding will likely result in significant changes to regulatory policy must not, however, be taken as saying that the inverse is also true: that all changes in regulatory policy stem from an altered risk-understanding. Yet students of policy-making and policy change must recognize the important role played by risk-understanding in the design of policy, in particular for policy fields in which risk management features centrally.

1.5 Thesis structure

This thesis is structured as follows: The next chapter proposes a theoretical framework for the study of risk-understanding in financial regulation, and discusses the strengths and weaknesses of the chosen methodological design. Chapter 3 introduces the main features of Basel II that merit labeling it a radical policy change. The fourth and main chapter analyzes the processes through which these academic ideas came to influence policy-making and Basel II, via altering the risk management practices of the sector. Finally, chapter 5 concludes this study by offering some interpretations and implications of the findings.

Chapter 2 Theoretical framework and methodology

2.1 Eclecticism and choice of theory

This thesis examines the mechanisms through which a set of ideas originating in neoclassical finance theory came to affect the design of regulatory policy in the decades prior to the financial crisis. The initial ideas from finance theory were models for portfolio diversification and for pricing of standard options. They were not ready-made models for regulatory policy aimed at ensuring systemic stability. Therefore, the ‘movement’ of these ideas from academic corridors and into the regulatory frameworks of most industrialized and industrializing countries did not take the form of a simple cut-and-paste operation. Instead these ideas were modified, expanded and incorporated into the financial sector’s broader systems for risk management. A complex process of social learning took place in regulatory circles, wherein sector risk models came to be viewed as appropriate for regulatory use. This transformation was made possible through the ways in which these ideas were used by – and changed the relationship between – various groups of actors. A study of these complex and interlinked processes can not only help us understand this particular policy change, but may also tell us something about the concrete ways in which ideas “matter”, and is therefore of both theoretical and empirical interest.

The claim made in this thesis is that the ideas affected regulatory policy through altering how regulators understood financial markets in terms of risk and uncertainty. There are several mechanisms we need to identify and analyze in order to understand how regulatory risk-understanding changed in the period in question, and how this may explain the radical change to policy. As with most policy outcomes, many different factors combined to produce Basel II. However, four aspects of this process are selected as the most important in explaining the outcome. These are (1) the inherent properties of neoclassical finance theory, (2) the ways in which these ideas were transformed by the financial sector into systems of risk management, (3) the regulatory dynamics in reaction to these developments and, finally, (4) the strategic use of these ideas by financial sector representatives in their lobbying efforts. To assist in the disentanglement and analysis of these mechanisms, this thesis will draw on and combine insights from different theoretical schools, because no ready theory against which to ‘test’ the case exists. The theoretical framework is sought constructed in a systematic and clear manner, so as to avoid the trap eclectic scholars may fall into, that of creating “kitchen sink” arguments wherein ‘everything matters’ (Checkel 2012).

This chapter begins by discussing financial regulation as a policy field, with respect to its organizational and discursive features. As a tool to assist in the analysis of policy change, I propose a model of political versus scientific policy issues. Thereafter, the concept of risk is discussed, looking at the underlying dimension of risk and uncertainty, and defining the new concept *risk-understanding*. Section 2.4 draws on several theoretical contributions that relate to the analysis of ideas, interests and institutions. The final section discusses the methodology and design of this study.

2.2 Finance a policy field – discursive and organizational features

From the perspective of political science, approaching issues of finance and financial regulation opens for the possibility to compare and contrast this policy field with other policy fields, revealing several noteworthy characteristics. This subsection outlines some general features argued to be present, albeit to a varying degree, across countries with developed financial sectors. This may be useful as a backdrop in analyzing the policy regime. It is possible to conceive of three stylized paths of influence for financial regulation: democratic politics, technocratic expertise and interest group politics.⁵ For the issue-area of financial regulation, the influence from the electoral channel is assumed to be weak, while the influence via the latter two paths is strong. Financial regulation does not enjoy the same level of public interest as do issues of education, taxation or security. Even in the midst of the largest overhaul of the financial regulatory system in two decades (2009-12), these efforts attracted little attention outside the specialty business press. The consequence of this lacking public interest is that the potential for influence from the other two channels, experts and interest groups, becomes greater.

There is little objective reason for this state of affairs. The financial sector – broadly defined as finance, insurance and real estate – is extremely important for the economic welfare of most individuals. The less extensive the welfare state provisions are in a given country, the more important the financial sector becomes for the material welfare of its citizens. In a limited welfare state, the financial sector is the primary mechanism through which individuals insure against accidents, illness, unemployment and death, where they save for their retirement, where they borrow money for their education, business ventures and housing. For

⁵ The term 'democratic politics' is here used to denote the electoral channel. This is not to be taken as claiming that expert and/or interest group influence over policy-making is by definition undemocratic.

these reasons, the regulation of this sector should be an important issue for most voters. Yet financial regulation receives little public attention, and consumers of financial services remain for the most part unorganized. This may partly be explained by looking at the manner in which issues of financial regulation are discursively treated in public debate. That is, whether the policy issue is framed as a question of technical or scientific character, or as a contested political issue. Subsection 2.2.3 introduces a model with which to analyze policy-making processes with respect to this discursive dimension. Before introducing this ‘science continuum’, the two remaining paths of influence, expert and interest groups, are discussed, as the discursive treatment of financial regulation will affect these as well.

2.2.1 The prominence of expert influence

These three paths of influence are naturally related, as the level of influence over policy may be said to be absolute. If one path is established as weak, the democratic channel, we can expect one or both of the remaining channels to be correspondingly more influential. To begin with the role of experts, these play a central role in the design of financial regulatory policy. Much of regulatory policy is decided at the level of public administration. The public agencies entrusted with the task of regulating and supervising a country’s financial markets are typically the treasury, the central bank, and the financial services authority if the latter is independent of the central bank. These agencies are populated predominantly by officials trained in the discipline of economics.⁶

The prominence of experts and the lack of public interest in the area of financial regulation is partly a result of the complexity of the subject matter. Tranøy (2000: 68-69, 75) argues that there are two channels, one positive and one negative, through which complexity contributes to the relative dominance of experts in a given policy field. The positive channel is that complexity requires the use of technical expertise, as advanced capitalist societies depend on the division of labor. The negative channel is that complexity obfuscates the distributional aspects of a policy field, making it more difficult for (some) agents to realize their interests. Complex policy issues thus tend to become the domain of expert groups because individuals may have overlapping and even conflicting interests and group affiliations, making it more difficult to understand one’s interests in relation to a set of policy alternatives. This is then a challenge for the democratic features of policy-making in the given field, as it affects the

⁶ The presence of other professions, such as lawyers, varies with national traditions.

symmetry of organized interests. These interpretations of complexity are not mutually exclusive, yet the respective weight ascribed to them will affect the degree to which the power experts wield ‘at the expense of others’ (Abbott 1988: 87) is seen as problematic. Adding to this, it is important to note that complexity is not only an objective and fixed quality, but is also a subjective label contingent on how the policy field is treated in public discourse in a specific temporal and spatial context. This will be discussed further in subsection 2.2.3.

Given this dominance by economists over regulatory policy, we can expect several features to pertain to policy-making in this field. First, we can expect these institutions to be particularly prone to ideational influences from the economics discipline. Second, once new ideas are accepted into the expert community, we can expect to see a broader consensus around these ideas than would be the case in more diverse and non-economist dominated policy circles. This latter expectation follows from the insight of the theory of epistemic communities, which posits that when a policy-making community is homogenous in its professional composition, we can expect strong socialization processes that lead to broadly shared understandings of the means-end relationships that ascribe to the area of regulation. Shared understandings facilitate consensus around the optimal strategies for reaching the policy goal, thus increasing the leverage these expert groups have over policy-making. As these experts are members of the economics profession, we can expect this dynamic to be even stronger, given the features of the contemporary economics discipline with its lack of theoretical pluralism.⁷ Contemporary economics is perhaps the least pluralistic of the social sciences. The move from academic to professional settings can further diminish the degree of nuance that exists in the academic discipline, as economic ideas and theoretical developments can be delayed, oversimplified and even abused in their non-academic form (Tranøy 2008). While the discipline of economics may be far more nuanced as it is taught on the PhD level, many of the professional economists that function as technocratic policy makers and private sector consultants, have not been taught at this level.⁸ At the undergraduate level, there is little or no emphasis on the ideational history of economics (Vaughn 2005; Vislie 2005), nor on the nuances and disputes that characterize the contemporary research discipline (McGeehan 2010). These factors affect

⁷ The discipline of economics has received much criticism after the crisis, both from external observers and core members of the profession (e.g. Krugman 2009). Although there are different theoretical schools within the discipline, the mainstream is characterized by a shared set of fundamental assumptions about individuals and markets and a consensus on the appropriate methods with which to study them.

⁸ Although at the top level in central banks are often economists with academic backgrounds.

financial regulation through the ways in which the economic ideas that inform policy-making, explicitly and implicitly, are interpreted and presented by the actors involved.

2.2.2 The asymmetrical organization of interests

The channel of influence from interest groups is also very important for the issue-area of financial regulation. There are two features worth noting in this respect. The first is that the organization of interests in this field is not symmetrical. While the financial sector institutions – the banks, brokers and investment funds – are well organized, no comparable level of organization exists for their counterpart. This counterpart would be consumers of financial services, bail-out funding taxpayers and the society at large, to the extent that ‘main street’ suffers from financial crisis-induced economic downturns. Secondly, the financial sector is one of the best-organized and most resourceful sector lobbies in the world, in several years directing more resources toward gaining political influence, in absolute terms, than do comparable ‘big spenders’ such as the pharmaceutical and military industries (Igan, Mishra and Tressel 2009).

This asymmetry of organization and the vast resources wielded by one party runs counter to the ideal stipulated by pluralist theory, in that those with vested interests will organize on the political arena and policy will be an outcome of this struggle. Despite their interest in policy outcomes, the financial sector’s counterpart remains unorganized.⁹ They constitute a large, diffuse group, according to Mancur Olson’s (1965: 46-50) typology of interest groups. As his rationalist theory of collective action problems predicts, this type of group will have the highest barriers to organization. This is because the benefit to the individual may not exceed the cost of organization, resulting in what are rational decisions on the level of the individual producing a collectively non-rational outcome: a large political group remains unorganized and unrepresented. It is thus not only the size of the group that raises collective action barriers, but also the ratio of benefits contra organization costs (Olson 1965: 22-3; North 1990: 13). The asymmetry of organization may also be explained from institutionalist and constructivist perspectives. These non-rationalist perspectives would look to the discursive features of the field in order to account for this asymmetry of organization. How the discursive treatment of a policy issues matters for the politics of the policy-making process is discussed in the next

⁹ With the exception of organizations promoting consumer interests in general, which usually limit their focus to single-issues such as how loan advertisements are presented. In the wake of the financial crisis, however, to more general consumer organizations have emerged: *Americans for Financial Reform* and *Better Markets*.

section, which proposes a framework for analysis of the effects of such features. Whether explained through rationalist or competing perspectives, the empirics are nevertheless the same, in that the financial sector, with its enormous resources and its lack of organized counterparts, wields considerable influence over regulatory policy.¹⁰

2.2.3 Policy areas moving along a science continuum

One way of understanding how the presentation of a policy area has consequences for the “politics” of the policy-making process is to conceive of policy issues as placed along a continuum, where the respective ends may be defined as ‘scientific’ and ‘political’. Financial regulation as a policy-area would be closer to the ‘scientific’-end, as it is often discursively treated as a matter of technical optimization rather than as a distributional issue (Sinclair 2009: 450). The emphasis here on the discursive features of financial regulation and how these features obfuscate distributional issues related to different policies, must not be interpreted as denying that there are any collective-good features pertaining to financial regulation.¹¹ Neither is this focus on the discursive aspect of policy tantamount to rejecting the existence of any objective qualities and degrees of complexity related to the issue-area that may affect the way it is treated discursively. Yet the practice of regulation – whether for finance or other areas of society – is always discursive to some extent. This is because regulation involves the ‘production and negotiation of ideas, the development of classificatory schemes and the writing of blueprints for best practice’ (Power 2005: 578). While there are objective features and degrees of complexity associated with different policy areas that have effects for the politics, it is in practice difficult to separate these from the effects of the discursive treatment, in order for their respective influence to be analyzed separately. The way in which a policy issue is presented to the public will matter for the politics of the policy-making process, irrespective of the objective features pertaining to the field. In addition, it is important to note that the discursive attributes of any policy field are not fixed across time and space. A policy field may change in terms of how the policy discussion is framed and which set of actors are seen as legitimate participants. I propose the following model as a fruitful way of understanding the relationship between how a policy field is discursively treated and the

¹⁰ There are however national differences in this influence, subject to both the political culture of lobbying and the size of the financial sector in the economy.

¹¹ Financial systemic stability is claimed to be a collective good in the sense that most of society will benefit from a stable financial system able to perform its functions for the rest of the economy. This is not to be confused with claiming that financial stability is a public good, which in economic theory is defined as a good which is non-rivalrous and non-excludable.

characteristics of the associated policy process. The model envisages policy areas as moving along a continuum between two hypothetical end-points. At one end the policy issue is framed entirely as a matter of ‘science’, and at the other end purely as a ‘political’ issue. Table 2.1 contains an overview of the features of a policy field at these respective end points.

	Scientific	Political
Policy objective	Optimization	Distribution
Consideration of policy alternatives	Alternatives presented as technically superior/inferior in relation to one another, often in terms of ‘efficiency’	Alternatives presented as trade-offs, with a broad recognition that each alternative encompasses both costs and benefits
Participation	Narrow participation: professional barriers to entry, participants are framed as ‘experts’ and neutral ‘knowledge providers’	Broad participation: all citizens considered qualified to assess the alternatives and make an informed choice, participants are framed as ‘stakeholders’, ‘affected parties’, ‘interest groups’ etc.
Main drivers of policy change	New technology and information	Value shift in majority of population, or new information on costs contra benefits
Decision-making rationale	Objective choice	Normative priority

Table 2.1 Features of scientific and political policy issues.

From the table we see that the policy objective for a purely scientific issue is framed as one of optimization, as opposed to a political issue which aims to (re)distribute some of the goods and burdens in a society. From this, it is possible to distinguish between how the policy alternatives – or means – toward the objective are framed. For a scientific policy issue, the alternatives are presented in a technical hierarchy where one alternative emerges as superior

to others. For a purely political issue, by contrast, policy alternatives are framed as more or less equal in terms of overall effectiveness, but with the associated costs and benefits being distributed differently across the alternatives.

The way in which a policy issue is framed along this dimension, matters for the pattern of participation in the policy-making process. For a scientific policy issue, participation will be narrow and subject to professional barriers to entry, where one or a few professions are recognized as possessing proprietary knowledge of the issue area. Political issues will have broader participation, in line with the framing of the issue in distributional terms, wherein the alternatives are broadly equal in overall outcome, differing only in their distribution of costs and benefits to different groups. Participants in pure scientific policy-making are therefore likely to be considered providers of neutral expertise, and not as affected parties with a vested interest in one alternative. Similarly, the drivers of policy change will be different across the two types of policy. Whilst technological advances might shift the hierarchy of alternatives on a scientific issue, shifts in public values regarding relative costs and benefits, or shifts in coalitions of power, will be the main driver for change on a political issue. Finally the decision-making rationale behind these processes for scientific versus political issues can be contrasted as an objective or a normative choice, respectively.

Needless to say this classificatory scheme describes ideal characteristics. Upon empirical investigation, no actual policy process in an issue-area will fit perfectly with one of the labels. This way of approaching the framing of a policy field might nevertheless be useful to the extent that it can constitute a yardstick against which to evaluate how a policy process, observed in a specific spatial and temporal context, measures against these ideal characteristics. With these hypothetical end points as a backdrop, it should also become easier to spot changes, or ‘movements’, along this continuum. This analytical tool may also help to determine whether a given policy area is broadly considered more scientific or political in period t_0 than it was in period t_1 . The end points may also be useful if doing a spatial comparison, for example examining whether a policy area is considered a more scientific policy issue in country A than in country B.

This approach does not preclude any inherent and objective qualities pertaining to different policy fields that may affect their positioning along this continuum. Some policy areas are more technically complex than others, and as a consequence in need of technocratic

regulatory expertise. Yet the discursive treatment of policy issues will also matter for their placement along this hypothesized continuum, and in practice this effect cannot be separated from the effect of any inherent quality. Furthermore, any observed movement along the continuum in relation to the stipulated criteria is more likely to be the result of a shift in discursive attributes rather than a shift in the inherent features of the field. Conceptualizing policy issues as moving along this ‘continuum’ is therefore argued to be a useful analytical tool in empirical analysis. With this as a backdrop the dynamics of the Basel II process are easier to analyze and understand. Financial regulation in general tends toward the ‘scientific’ end of the hypothesized continuum, and is traditionally framed as a technical matter with objective, collective-good qualities. The diffusion of MPT and risk management models pushed financial regulation even further toward the science-end of the continuum. Yet issues of financial regulation clearly have distributional effects, something the presence of a strong lobby group on behalf of the sector bears witness to.

2.3 Defining and operationalizing ‘risk-understanding’

As a key analytical tool for understanding the influence of ideas from modern portfolio theory on the changes made in Basel, I introduce the concept of regulatory *risk-understanding*. The concept is also proposed as a fruitful way in which to analyze policy change more generally, for policy areas wherein risk management features centrally. Applying such an abstract and ambiguous concept in empirical research does however bring with it the need to carefully define and operationalize what is meant by this. This section offers some theoretical reflections on the concepts of risk and uncertainty, in general and as they relate to financial regulation.

2.3.1 Financial risk

In contrast to other societal areas, risk has a dual function in financial markets in that it is at the same time a hazard to be avoided and a profit opportunity to be sought. It is common to distinguish between three forms of risk facing financial institutions: credit, market and operational risk. *Credit risk* is the risk of a borrower defaulting, and this is perhaps the most central risk category associated with the day-to-day activities of financial institutions, and banks in particular. For banks and financial institutions in the business of lending, the potential delinquency or default by borrowers (individuals, businesses or governments),

matters a great deal for the lender's solvency. Credit risk has therefore been considered the most central threat to financial institutions and by extension to the stability and security of the financial system. Unexpected losses arising from credit defaults have been the traditional justification for, and focus of, regulatory capital requirements. *Market risk*, a risk form of increasing importance, is typically defined as the risk of loss on an institution's portfolio stemming from market developments, such as changes in interest rates or asset and commodity prices. *Operational risk* is the risk stemming from failures in the banks' internal systems, whether human, legal, or technological. In addition to these three, financial regulators operate with a fourth, and more important risk category, that of *systemic risk*. While this risk form may seem easy to understand instinctively, it has proven problematic to pin down and define in a useful way. These problems have nourished the famous quip concerning systemic risk, which is that although financial regulators may struggle to define systemic risk, they "know it when they see it" (Lo 2009: 9). The shared, general understanding of these risk forms has been stable over time, yet the more precise definitions, how the risk forms are weighted in terms of importance, and how they are sought managed, can vary greatly. Of particular importance to risk management both in the sector and for regulation, is the extent to which these risk forms are seen as quantifiable. Another important issue is how the sector's three risk forms are seen to relate to systemic risk, which has important implications for the design of regulatory policy.

2.3.2 Risk, uncertainty, and risk-understanding

The above risk forms refer to the term risk in the commonsense understanding of the term, as a potential threat or danger. Subsumed under this broader risk term, however, lies a range of phenomena that may be differentiated theoretically by the amount of knowledge that actors have of them. Here we encounter the term *risk* in the narrow sense, as it is juxtaposed to the concept of *uncertainty*. One of the first attempts to systematically disentangle these concepts was made by US economist Frank Knight in 1921¹²:

‘But Uncertainty must be taken in a sense radically different from the familiar notion of Risk, from which it has never been properly separated. The term “risk”, as loosely used in everyday speech and in economic discussion, really covers two things which, functionally at least, in their causal relationship to the phenomena of economic organization, are categorically different’ (Knight 1921: 19).

¹² Keynes made a similar distinction in “A Treatise on Probability” in the same year, 1921.

‘The essential fact is that “risk” means in some cases a quantity susceptible of measurement, while at other times it is distinctly not of this character; and there are far-reaching and crucial differences in the bearings of the phenomenon depending on which of the two is really present and operating’ (Knight 1921: 19-20).

The distinction Knight makes is between what will here be termed risk “proper” and uncertainty. Risk (proper) denotes a choice environment or situation, in which the range of possible future events is known, and a mathematical probability of occurrence can be ascribed to these events, with a fixed and limited margin of error. This is also called probabilistic risk. Uncertainty, in contrast, refers to situations or environments in which making probability estimations of future events are not possible. This is because we do not know what the possible future scenarios may be, and much less are able to attach reliable probabilities to these. Former U.S. Defense Secretary Donald Rumsfeld was making the same important distinction when he explained the difference between “known unknowns” and “unknown unknowns” in his much-ridiculed 2002 speech on the situation on Afghanistan.¹³

The simple taxonomy of risk and uncertainty is widely criticized. There are those that criticize the distinction on fundamental grounds, claiming that it is neither exhaustive nor mutually exclusive. For example, Jacqueline Best (2008) argues that these two concepts do not exhaust the degree of indeterminacy that characterizes social environments in which agents make decisions. Both concepts look to the future for this indeterminacy, and therefore this taxonomy does not sufficiently recognize the inherent indeterminacy that characterizes the present, as a result of the social, political and intersubjective nature of knowledge (Best 2008: 360). Other critics will recognize the theoretical distinction between risk and uncertainty, but instead question whether it is of any practical use in empirical research. Holzer and Millo (2005: 225) argue that the characteristics of the environment in this respect are only determinable after-the-fact and as a consequence the risk/uncertainty distinction is of little value in the analysis of decision-making.¹⁴

These are valid points. Yet, as will be argued below, the distinction between risk and uncertainty can not only be useful in the analysis of decision-making on risk management, but may even be key to explaining outcomes. However, to juxtapose risk and uncertainty in this

¹³ Rumsfeld made this comment during a News Briefing at the Department of Defense on 12 February 2002. Full transcript available at www.defense.gov/transcripts.

¹⁴ Holzer and Millo instead suggest operating with the concepts of risk and danger, where the former is a situation in which the agent has a choice, and the latter beyond the agent’s control.

way does not mean that these two should be viewed as exclusive, cut-and-dry categories. Uncertainty is a matter of degree. Mark Blyth (2010: 162-164) sheds lights on important nuances in this respect, by offering a more precise taxonomy of different degrees of uncertainty. He makes a distinction between three possible worlds we may live in. The first is a world of risk, wherein there is a fixed and limited set of outcomes, which follow a normal distribution. In this world the ‘probability generators’ are observable, much like with the throw of a die. Therefore, sampling from past events will give the observer sufficient information so that the expected and actual parameters of the distribution converge. The second possible world is one with a greater degree of uncertainty and with an unobservable and complex probability generator. Distributions are here ‘fat-tailed’, meaning that the likelihood of extreme events is far greater than in the normal- distributed world of risk. Finally, we have a world of radical or fundamental uncertainty, in which the probability generators are so complex, and causal relationships continuously evolving, that the practice of sampling from the past may not only be futile but even counterproductive. Taleb (2007) argues that in this world of wild randomness, or “Extremistan” as he calls it, having no map on which to base decisions is preferable to having an erroneous map. Very few social scientists would claim that the social world we live in resembles the first world of risk. Much of economic theory and political science is nonetheless based on these assumptions. On the other hand, the third world of radical uncertainty would be one in which advanced societies would struggle to function. Creating and maintaining institutions of any kind would be extremely difficult in a world where we have no way of knowing what is likely to happen next, and government would be impossible. It is therefore safe to assume that we – most of the time – live in a world in between risk proper and radical uncertainty, i.e. in some version of Blyth’s world two.

In order to apply these complex and abstract ideas in the empirical analysis of financial regulatory policy-making, it is important to keep in mind two dimensions: what *actually* characterizes the environment in terms of risk and uncertainty, and how agents *perceive* this environment in the same respect. Regarding the first dimension there is also the question of whether the features of the environment are fixed or subject to change. Radical, fundamental or Knightian uncertainty, are all terms used to denote an inherent form of uncertainty that cannot be mitigated through the supply of more information. Peter L. Bernstein (1996; 2007) views the emphasis on converting (non-radical) uncertainty to risk in economic theory as being part of a broader modernist project, central to scientific endeavor for centuries. John

Lanchester (2010: 33) sees the study of risk as ‘...a humanist project, an attempt to abolish the idea of the incomprehensible fate and replace it with the rational, quantifiable study of chance’. This is certainly true for much of the natural world, in which humans have made remarkable scientific progress over the past centuries. It is however problematic to assume that the social world also has this kind of convertible uncertainty. Indeed, if parts of the social world are inherently complex, the belief that it is possible to convert these uncertainties into risks may prove dangerous, as was Taleb’s warning about decision-makers having ‘the wrong map’. Regardless of the actual features of the environment, the way agents perceive this environment will affect the decisions they make in pursuit of their goals. The degree of coherence between the actual features of the environment and the agents’ perception of them will affect the success of this pursuit. More specifically, the way regulators perceive financial markets with respect to risk and uncertainty will affect the regulatory policy they design. Any discrepancy between the regulators’ perception of financial markets and the actual features of these will negatively affect the effectiveness of this policy. It is in order to be able to analyze the effects of this dimension on policy that I introduce the concept of *risk-understanding*. First, a theoretical definition is offered: risk-understanding is *the way in which a decision-maker deciphers her environment in terms of risk and uncertainty*. The underlying risk-understanding of an agent will affect which means toward the agent’s goals are pursued and risk-understanding is therefore important in the analysis of decision-making, and more specifically policy-making. Because an agent’s risk-understanding is not constant, but subject to change, risk-understanding is potentially an important explanatory factor in the study of policy change.

2.3.3 Regulatory expressions of risk-understanding

An agent’s risk-understanding is unobservable. As a consequence, some operationalized expectations of how risk-understanding expresses itself must be developed in order to meaningfully apply this concept in research. If regulators believe financial markets to be closer to a world of uncertainty rather than risk, we can expect a certain type of policies. In a complex world of uncertainty, it will be difficult to pin down the exact causes of financial crises, so as to target these through policy. Policy would therefore have to be aimed at limiting consequences and contagion of crises. We can expect broad, general rules rather than more detailed ones. Furthermore, policy will be designed specifically to target the system at large as well as individual institutions. The aim for policy will be to secure a system resilient enough to be able to absorb shocks, as uncertainty renders it difficult to avoid such shocks. As

part of building resilience, policy would for example be aimed at hindering the emergence of too-big-to-fail institutions. As uncertainty makes it difficult to prevent individual institutions from failing, the system would have to be constructed in such a way that any bankruptcy would not be severe enough to threaten the system. Liquidity and risk (in the general meaning) would necessarily be seen as relational properties, and not simply properties of individual institutions. In contrast, if regulators believe financial markets to be a world of probabilistic risk, policy can be expected to look somewhat different. Causes of crises can be identified, and reliable probabilities attached to these causes. As a result, policy may be more detailed, and specifically directed at the identified threats. In a world of risk, the system is no more than the sum of its parts, and policy is therefore directed at institutions, with less emphasis on the interaction between these, the relational properties of risk, or on particular systemic dynamics. Risk can be measured in quantifiable terms, and modeled and managed probabilistically. These policy expressions are of course stylized, and actual policy will be a mix of policies assuming both risk and uncertainty. Still, these may be useful as a backdrop in the analysis of policy change, in establishing whether the shared regulatory risk-understanding places more emphasis on risk or uncertainty. These policy expectations also serve to illustrate the concrete and important implications which the understanding and definition of risk may have for the design of policy. Regulatory risk-understanding will have effects on which policy means are considered legitimate, efficient and sufficient in the regulatory endeavor, and may also affect the conception of the policy goal itself. This study analyzes the role of risk-understanding in the design of Basel II, by tracing the process through which a set of ideas altered the regulatory understanding and definition of risk.

2.4 Conjoining mechanisms in the redefinition of risk

The study of ideas, their diffusion and potential causal effects on any outcome of interest is fraught with difficulty, as the object of study is inherently unobservable. '[The ideational] dimension of politics has proven especially difficult to model. Like subatomic particles, ideas do not leave much of a trace when they shift' (Hall 1993: 290). The challenges relating to the study of the causal or constitutive effects of ideas, as well as the philosophy of social science underpinning this analysis, are discussed toward the end of this chapter. The point of departure for this study is that a set of ideas from neoclassical finance theory affected the regulatory regime that developed in the decades prior to the financial crisis. This thesis traces

these ideas through several complex and intertwined mechanisms that conjoined in altering the risk-understanding of regulators.

In Tranøy's (1998: 17) formulation, a study of ideational effects should examine

‘...how a given economic circumstance is interpreted, by what means the knowledge is diffused and what institutional and political obstacles the idea meets as it is carried into the decision making arena.’

In addition to his notion of institutional and political obstacles, I would also add ‘catalysts’, as existing institutional logics and interest group power relations may in some instances catalyze the inherent attributes of a new idea, and in so doing strengthen the speed and magnitude of effects this idea has on policy. The already-present institutional features of the Basel Committee and the organizational asymmetry of interest groups may have strengthened the impact risk management ideas had on regulatory risk-understanding, than would have been the case under different institutional conditions. Generally, there are multiple and numerous paths through which ideas may affect an outcome. This is also the case for Basel II. In this study, four aspects of the process are selected as focus of investigation. The selection is made on the basis of two criteria: One, judging from the available data, these mechanisms appear to be the most plausible ways through which these ideas came to affect the risk-understanding of regulators and, consequently, come to serve as a basis for the design of regulatory policy. Second, these mechanisms are also fairly easily distinguishable on a temporal dimension, and can therefore be ordered chronologically.

2.4.1 Sorting out the ideas, interests and institutions

To begin with the first aspect of the process leading to Basel II, the theories and models that fall under the label of MPT share a particular definition of risk. The question at this stage thus becomes *if and to what extent this theoretical conceptualization of risk directly influenced the risk-understanding of Basel financial regulators* (1). This ideational influence concerns the movement of these ideas from academic corridors into regulatory policy. Secondly, upon introduction into the financial sector, these theories and models were expanded, transformed, and incorporated into broader systems of risk management. For this part of the process the relevant question is *how these ideas played into institutional processes in the financial sector and came to change practices of risk management in financial institutions* (2). This represents an indirect influence of these theories on regulatory policy, through altering practices in the financial sector and, ultimately, the functioning of financial markets. Thirdly, the internal dynamics of the Basel Committee are examined. If the decision-making dynamics of the

Committee resemble those of an epistemic community, the potential for these ideas to affect the shared perception of means-end relationships amongst the committee members can be expected to be significant. The question is then *how these risk management technologies came to be perceived by regulators as legitimate and useful regulatory instruments* (3). This dimension is important to add to the mix, because the regulators learning to use these risk management technologies as regulatory tools does not follow automatically from the inherent properties of these ideas, or from the risk management practices the ideas came to shape. Hypothetically, regulators could have observed and even approved of these changed risk management practices in the sector without interpreting them as a potential new methodological approach to regulation. Finally, this theoretical framework also opens for an interest-based perspective. The movement and transformation of ideas on various arenas, from academia, to the sector, and to regulatory policy, is not claimed to have ‘happened’ entirely without the purposeful action of the actors involved. At this stage it is important to try to analyze *the extent to which ideas about risk management were used strategically by representatives of the financial sector to achieve more favorable regulation* (4). The process is argued to have worked through these four stages to bring about the radical change to regulatory policy. The four stages of the process through which MPT affected Basel II are separated and analyzed in turn in chapter 4.

2.4.2 The diffusion of ideas and social learning

There is a broad, substantial literature within parts of international relations and public policy theory that focuses on how ideas ‘travel’, whether this travel occurs between policy areas or different organizations in one state, or between nation states. Simmons, Dobbin and Garrett (2006) argue that international diffusion of policy may work through four mechanisms: coercion, competition, learning and emulation, where the first two are mechanisms of strategic or causal adaptation of ideas, and the latter two constitutive. Other contributions acknowledge the possibility of both causal and constitutive aspects being at work in the incorporation of an idea into policy, and have attempted to combine these in analysis. In their ‘Spiral model’ of the diffusion of human rights norms, Risse and Sikkink (1999) have shown that political leaders may adopt and abide by norms for varying reasons over time. Their study tells us that deciding a priori that ideational diffusion occurs either through causal and strategic adaption or through learning and internalization of the idea is not a fruitful approach. Instead, scholars should look for both dynamics, attempting to determine which logic prevails

under which circumstances. The general difficulties that are associated with the study of ideas are compounded in this case by the peculiar nature of this particular ideational travel. In this case, ideas have not traveled between similar organizations, between policy areas, or between countries. The ideas traveled from academia to regulatory policy, via financial market practices. The travel from academia to policy would not in itself be remarkable if these were academic theories of regulation. However, these were theories aimed at investors, to aid in portfolio diversification and in pricing of complex instruments. When the Basel Committee drew inspiration from this set of theories to design policy for systemic regulation, this represents an interesting case of social learning.

Peter A. Hall (1993: 278) defines social learning as ‘...the deliberate attempt to adjust the goals or techniques of policy in response to past experience and new information’. Hall disaggregates learning into three degrees of change. Third-order change is when the precise settings of policy instruments are changed, for example raising the interest rate 0.25 %. Second-order change is when the policy instruments used to attain goals are changed, and first-order change occurs when the policy goals themselves are altered. Similarly, Ernst Haas (1990) makes the distinction between ‘adaptation’ and ‘learning’ in his study of change in international organizations. Haas’ notion of adaptation would include Hall’s third and second order changes, while only a redefinition of the organization’s overarching goals qualify as learning. Hall borrows Thomas Kuhn’s concept of a scientific paradigm, and argues that policy makers operate under *policy paradigms*. Hall defines a policy paradigm as a

‘...framework of ideas and standards that specifies not only the goals of policy and the kind of instruments that can be used to attain them, but also the very nature of the problems they are meant to be addressing. Like a *Gestalt*, this framework is embedded in the very terminology through which policymakers communicate about their work, and it is influential precisely because so much of it is taken for granted and unamenable to scrutiny as a whole’ (Hall 1993: 279, original emphasis).

Hall furthermore argues that second and third order changes, i.e. changes in instruments and their settings, fall under the realm of ‘normal policymaking’. He expects the process of third-order change to be a different process, with radical shifts in the policy paradigm. As the policy goals expressed in Basel II are the same as those in the original BCA, this case of policy change would not qualify as learning in either Hall’s or Haas’ framework. Yet, as the analysis in the following two chapters seeks to show, Basel II nevertheless represents a radical change to the practice of financial regulation. A substantial social learning process took place in regulatory circles upon observation of theoretical developments in finance theory and

changes in financial practice. This is a case of social learning from which a substantial change in regulatory thinking resulted, and this change would not be sufficiently captured in either Hall's nor Haas' analytical frameworks.

Where ideational influence is concerned, the Basel Committee potentially represents a type of organization that is particularly relevant in this respect. As economist technocrats working independently from political supervision, the Basel Committee members resemble an 'epistemic community'. Peter Haas (1992: 2-3) defines epistemic communities as networks of knowledge-based experts, who share normative beliefs, causal beliefs, notions of validity and a common policy enterprise. Through their ownership of knowledge in a given field, epistemic communities may wield considerable power over policy-making. Goldstein and Keohane (1993: 14) argue that such communities may facilitate agreement through 'the reshaping of governmental conceptions of interest'. Peter Haas is explicit that epistemic communities do not need to be comprised of professionals with homogenous disciplinary backgrounds in order for them to have the presumed effects on policy-making. It is however reasonable to assume that if an epistemic community does consist of members from one profession, in addition to Haas' other criteria, the possibility of developing shared understandings of cause-and-effect relationships that carry authority would be even greater. As a group of technocrat economists, the BCBS is therefore a likely strong case of an epistemic community.

2.5 Methodology and research design

The final section of this chapter offers some brief reflections on the methodology of this study. Explications concerning the design, the identification of key aspects of the causal process, and the operationalization of risk-understanding were treated in sections 2.3 and 2.4. In this section, the data on which the analysis rests are discussed in relation to the design, as well as some of the assumptions associated with this design. Following this, some of the general challenges associated with using process-tracing as method are addressed.

2.5.1 Method, data and design

All social science (with the exception of behaviorist research) faces the challenge of having to make inferences from what can be observed (action) to that which is unobservable (reasons

for action) (Goldstein and Keohane 1993: 27). This problem is particularly pronounced in this study, as the phenomenon I wish to make claims about is regulatory *risk-understanding*. Not only is a person's risk-understanding inherently unobservable, but as this is a new concept proposed in this study there is little by way of previous research to aid in the search for suitable proxies. Finding good proxies is generally difficult in the conduct of social science, but especially so in this case. Some hypothetical policy expressions of risk-understanding were developed in 2.3, and these are discussed more concretely in 3.2. The problems of studying risk-understanding are furthermore compounded by the nature of the organization I have chosen to study. The Basel process has been claimed to be 'one of the most discrete policy processes to ever cut across borders' (Underhill 2005). The Basel Committee is more opaque than other organizations governing the global economy, such as the IMF and the WTO (Lall 2009). The lack of transparency represents a serious challenge for anyone wishing to research the Committee's work.

The most desirable data for this study are as a consequence unavailable. Minutes from Committee meetings are not made public, nor are topic and schedule for these meetings or even who is present at them. Much of the negotiations between the Committee and the financial sector were off-the-record (Lall 2009: 12). To answer the research question, qualitative interviews with the Committee members and their supporting staff at BIS would have been ideal, along with interviews with central representatives from the financial sector. As I have been unable to obtain such interviews, it has been necessary to seek out good substitutes for these data sources. In addition to the Basel II framework document itself, I have relied on BIS annual reports published during the reform period (1998-2006). In these, the Committee offers evaluations of the ongoing developments in financial markets, as well as reporting on their own activities. This document analysis is supplemented by secondary literature, some of which is based on interviews with relevant regulators and sector representatives. For insight into the diffusion of portfolio theory and the evolution of financial sector risk management practices, this study relies primarily on secondary literature but also on the testimonies of financial sector executives given to the US Financial Crisis Inquiry Commission in 2009 and 2010. While this study thus rests on a considerable amount of data, the fact that some of the key data is missing (information about what was discussed in BCBS meetings), represents a significant threat to the analysis. The missing information could well support the conclusions I have reached on the basis of the available data. It is however possible that the absent information might contradict what is found in this study, and could

have lead to other conclusions being drawn or to a reinterpretation of the remaining data in light of new information.

The emphasis in this study on ideas and learning in the Committee's design of Basel II follows the assumption that the internal dynamics of the Basel Committee will resemble that of an "epistemic community". The analysis partially rests on this assumption. However, studies of the internal workings of the Basel Committee are hard to come by. The few studies that do exist furthermore differ in their view of the Committee. The Committee meetings and policy-making processes have been described by some scholars as consensual and informal (e.g. Eatwell and Taylor 2000: 210; Porter 2010: 58), while others have stressed that conflicts between national interests dominate negotiations (e.g. Tarullo 2007). While the Committee's work can contain both types of dynamics, I find the stronger case for viewing the BCBS as an epistemic community. The majority of accounts claim this, and the Committee has the features that make it a likely case in this respect – the Committee is comprised of economist technocrats who even in their national regulatory endeavor operate fairly independently from political control. The fact that the Committee opted for a methodologically new approach to regulation with Basel II rather than simply uploading the extant policy regime of one the (most powerful) member countries supports the assumption of the BCBS as an expert group. The way in which the Committee framed the justification for revising the original BCA (as expressed in the annual reports) also support this claim. The burden of proof therefore rests with those who claim that Basel II is better explained by looking at competing national interests rather than the new risk management ideas.¹⁵

As Basel II is the outcome of interest in this analysis, this study represents what Gerring (2007: 187) has called a single-outcome study, rather than a single-case study of a larger defined population of cases. In the use of within-case analysis, the methodological strengths and weaknesses are similar to those of single-case studies, although the findings in single-outcome studies do not necessarily claim validity for other cases. However, single outcomes do not need to have unique causes (Gerring 2007: 196), and therein lies a potential for generating hypotheses that may be tested on other, relevant cases. Basel II constitutes an example of a radical policy change, and the concluding chapter therefore discusses which theoretical implications can be drawn from this analysis. As Rueschmeyer (2003) notes,

¹⁵ Having said this, it is important to note that the dynamics of the Basel Committee with respect to consensus or conflict are naturally not fixed but subject to change. Indeed, the conflicts that have arisen with the post-crisis attempt to design Basel III strongly indicate that the apparent consensus of the Committee in the past two decades has been contingent on the policy-making being in a deregulatory phase.

studies of a single case may also have value beyond generating hypotheses. These studies may aid in the development of new theoretical ideas, and furthermore test these ideas and use the result in the explanation of the outcome. In addition to the ambition of providing a better account of Basel II than what is found in the existing literature, this study also has theoretical ambitions with respect to developing analytical concepts and to nuance existent theories of learning. The following section discusses the strength and weaknesses of the chosen method, and the underlying philosophy of social science.

2.5.2 Process-tracing

The method of process-tracing enables the researcher to tease out the interaction of variables that combine to produce a given outcome. In this case the relationship of interest is between a set of ideas in neoclassical finance theory and the radical policy change of Basel II, with a focus on the risk-understanding of financial regulators. Jeffrey Checkel (2008) claims that to invoke process is synonymous with a mechanism-based understanding of social science theory-building. Process-tracing may give more realistic accounts of a relationship and avoid structural, functionalist explanations. It is a method particularly suited for this study. This is because the relationship between neoclassical finance theory and the pre-crisis regulatory regime is by many commentators taken for granted, when it in fact is remarkable that theories of portfolio diversification should have any affects of policies for systemic regulation. Process-tracing can aid in the identification of the complex causal paths that connect this set of ideas with the policy outcome.

As with all methods, process-tracing has both strengths and weaknesses. The fact that the causal relationship of interest is broken down in parts can potentially give process-tracing an advantage over other qualitative methods. This is because counter-factual reasoning may be applied not only with respect to the relationship at large, but also with all of the intermediate steps. Identifying these intermediate steps may serve as a buffer against cherry-picking evidence to suit a favored explanation. Furthermore, the step-wise manner of process-tracing enables the researcher to go back-and-forth (if time permits) between the analysis and the study's theoretical and methodological design. Indeed, the design of this study has been revised twice as I realized whilst doing the analysis that the data did not provide me sufficient information on certain aspects of the process and as unexpected findings forced me to seek out theoretical concepts other than those I had originally expected to make use of. This

particular aspect of process-tracing can be a blessing and a curse, as the method can be highly time-consuming and deciding how much data is enough is difficult (Checkel 2006: 366).

Another weakness of such a method is that the findings are not falsifiable in the way which experimental and statistical designs may be (King, Koehane and Verba 1994). Process-tracing does furthermore not provide parsimonious theories of the world. On balance, the benefits of process-tracing outweigh the costs in this case. As the causal relationship is complex, and proxies for risk-understanding difficult to identify, such a method suits such an exploratory study, which has as ambition to develop theoretical concepts and generate hypotheses that may be tested on other cases of policy change and risk regulation.

2.5.3 On the role of ideas

Constructivist research looks at the co-determination of ideas, agents and an uncertain environment (Blyth 2010). However, constructivism is not the only perspective to ascribe a role to ideas. Indeed, even the strictest of rational choice theories see preferences and beliefs as the explanation for action (Snidal 2002). Yet ideas (preferences and beliefs) are exogenously given and not something to be explained within rational choice research. Softer rationalism will use ideas as a residual explanation, when explanations based on interests and institutions fall short (Goldstein and Keohane 1993: 3). Ideas are then treated more as a “mop up”-category for the variance that cannot be explained by interests (Wendt 1999: 93).

Constructivism and other ideational perspectives instead grant epistemological primacy to ideas. Ideas are not juxtaposed to interests or institutions as explanatory variables, but constitute these, and ideas are therefore viewed as fundamental to agency and to causation in social systems. Mark Blyth (2010: 152-155) argues that ideas are both and at the same time the media through which agents understand the world and the material that constitutes that world. Ideational perspectives draw into question the assumptions of equilibrium, linear causality, exogeneity and normal distribution that explicitly or implicitly underpin much of rationalist and institutionalist scholarship. Instead the social world is viewed as continuously evolving, with emergent causation and emergent properties that are endogenous to social systems which are not bell-shaped. With this starting point, ideas become fundamental to social science explanations. It is though ideas that humans construct the institutions and the stability they take for granted (Blyth 2010: 170). Such a perspective can improve social science theories by enabling researches to focus on what agents think they are doing, and thus potentially analyze the unintended consequences of action on the environment (Blyth 2010:

172). Furthermore, in stepping away from these common assumptions about the world and of perfectly informed agents that respond to incentives, social science research can pay greater attention to the important factors of mistakes and human ignorance in the conduct of for example policy-making (Friedman and Kraus 2011).

Chapter 3 The Basel II framework

3.1 An introduction to Basel II and the ‘copernican turn’

The Basel II accord and its broad acceptance into national regulatory frameworks is here claimed to represent a ‘copernican’ turn to the practice of banking supervision. This section introduces the features of Basel II that merit labeling it a radical change to policy. It begins by reviewing the justifications for revising the original capital accord, with a focus on the ways in which the first accord was seen as lacking. Following this, a selection of the most important features is discussed. Finally, the two accords are compared with respect to the risk-understanding underlying them.

3.1.1 Why was the Basel Capital Accord revised?

The BCA was completed in 1988, and was groundbreaking in its attempt to harmonize across national regulatory jurisdictions the methods for estimation of capital ratios that internationally operating banks are required to hold. The BCA represented a shift in the practice of international financial regulation in its move from simply facilitating cooperation to attempting international coordination of policy (Eatwell and Taylor 2000: 198). This was done to avoid the competitive distortions created by the existence of different national techniques for the calculation of capital ratios. The same set of assets could yield widely different capital adequacy requirements (CARs) depending on the national framework.¹⁶ The Committee’s efforts at ‘leveling the playing field’ in the international market for banking services represents one of the first politically conscious steps toward creating global financial markets. The regulatory methodology, however, remained similar to the one that had been practiced on the national level. The BCA was therefore not innovative in a methodological respect. The second Basel accord was different as it created an entirely new methodological approach to financial regulation.¹⁷ As the central features of Basel II had no prior existence in regulatory policy on the nation-state level, the Committee chose to design policy based on a methodology with which they had no prior experience (Tarullo 2007: 6).

The radical change represented by Basel II began with several amendments made to the BCA throughout the 1990s. The first major amendment came in November 1991, with still a year

¹⁶ In some instances this gave domestic banks a competitive advantage over international banks, while in most cases it gave mobile, international banks the opportunity to conduct regulatory capital arbitrage (RCA) across different jurisdictions.

¹⁷ A few of the features in Basel II had been previously introduced in some national frameworks. These features were expanded in Basel II, and combined with several new approaches to regulation.

remaining of the national implementation schedule. The 1991 amendment came as a consequence of the debate around the BCA capital definition, and the amendment effectively removed the limits on provisions included in ‘Tier 2’ capital (Wood 2005: 124).¹⁸ The Basel II framework expanded on this amendment by opening for the inclusion of a range of ‘hybrid securities’ in the definition of Tier 2 and – for some securities – core capital. Three other substantial amendments were made in 1994 and 1996 (2), in addition to several minor changes throughout the 1990s. When the BCBS in 1999 formally declared the start of a revision process to create a new capital accord, the reform had in effect already been ongoing for more than seven years.

Why was the Capital accord revised so shortly upon completion and so considerably? While much of the explanation can be found in the perceived shortcomings of the BCA, the quick revision of the original accord is also testament to its success. The BCA was successful in harmonizing banking regulation across countries, and the occurrence of regulatory capital arbitrage (RCA) was reduced upon implementation (Wood 2005). Yet the Basel rules were implemented also outside the Committee member countries, and the policies were applied to domestic as well as international banks. The fact that also Cuban banks operate in accordance with Basel rules was used as a quip in the introduction to this thesis, to stress the power and reach of the Basel rules. On a more serious note, this fact is illustrative of the broad legitimacy these rules enjoy. While the rest of this section will focus on the shortcomings of the BCA and the criticism it inspired, it is important to keep in mind that the diffusion of the Basel rules also created a need to update and expand the first framework.

The criticism directed at the BCA came from different sources and focused on different aspects of the framework, yet one of the common denominators was the claim that the capital definitions and risk-weighting methodologies were too ‘rigid’ and ‘crude’ for modern financial markets (Wood 2005; Tarullo 2007). The BCA made no distinction between different risk profiles of investments within the same category. To give one example, all OECD corporate loans would be subject to the same capital requirement regardless of which corporation the loan was granted to, or in which OECD-country the corporation was based. It was argued that this ‘excessively crude’ framework was ‘*biased against* effective portfolio diversification’ (Eatwell and Taylor 2000: 198, emphasis added). The financial sector

¹⁸ CARs typically distinguish between core or Tier 1 capital, which must be liquid, and lower forms of capital.

considered it ‘extremely unfair’ and a colossal ‘waste of resources’ to ascribe the same capital requirements to all corporate loans, irrespective of the precise risks associated with any given loan (Tett 2009: 52). At the time of the BCA’s completion, the techniques for risk management practiced in the sector had evolved with increasing sophistication, as will be analyzed in chapter 4. Observing this development, market actors, commentators and even the regulators became concerned with the discrepancy between the sophistication of sector risk management practices and the comparative crudeness of the existing regulatory framework (Millo and MacKenzie 2009: 647).

Calls were made for the BCA’s five risk categories to be split up and nuanced, the argument being that the asset types included under the same risk-weighting category were not in fact equally ‘risky’, and ought to be differentiated in terms of the capital required to support them. With these sophisticated risk management techniques, sector representatives argued that financial institutions were able to differentiate to a greater extent than before between types of borrowers, assets and investment strategies, and the risks associated with them. Lumping what were different risks into the same risk-weighting class resulted in CARs being too high in many cases, creating market inefficiencies.¹⁹ Viewed together, this criticism claimed that new risk management technologies in combination with new instruments for trading risk had created qualitatively different financial markets. In these new markets, the crude risk-weightings of CARs created inefficiencies, it was claimed, inefficiencies that could be resolved by the introduction of a more fine-grained system for weighting risk. Efficiency gains could be achieved without any decrease in systemic stability.

Judging by the design and process of Basel II, the BCBS appears to have accepted these criticisms as correct and legitimate. The lack of longevity of the BCA is also a factor to consider. Upon completion, the first framework was hailed as a substantial achievement for international regulatory cooperation, and helped consolidate the position of the BCBS and the BIS as important organizational forums for global economic governance. The fact that the BCA was met with so much criticism so early in life is likely to have been a great embarrassment for the Committee. Creating a framework able to withstand further change in financial markets without becoming outdated and irrelevant was a priority in the making of

¹⁹ The dichotomy between OECD and non-OECD governments bonds were criticized for the opposite reason, as OECD membership had been expanded to countries with weaker economic fundamentals, where government debt was not necessarily risk free. This problem was addressed in a 1994-amendment (Wood 2005: 125).

Basel II. The aim was to create a dynamic, sophisticated and flexible set of rules that could be adapted to the ever-changing realities of modern financial markets, as new markets develop, new instruments are created and new linkages between existing markets emerge.

3.1.2 The main features of Basel II

This section introduces the elements of Basel II that justify labeling it a radical policy change. These changes occurred without any shift in the overall policy goal. It was solely a shift in the regulatory tools considered the most effective means toward the end of ensuring stable (yet efficient) financial markets. The aim of the Basel II framework was formulated in remarkably similar terms as it had been in the BCA:

‘The fundamental objective...has been to develop a framework that would strengthen the soundness and stability of the international banking system while maintaining sufficient consistency that capital adequacy regulation will not be a significant source of competitive inequality among internationally active banks’ (BCBS 2006: 2).

The objective was still framed as ensuring systemic stability and limiting opportunities for regulatory capital arbitrage. The overall capital ratio was kept steady at 8 per cent, risk-weighted. This case of policy change would therefore fly under the radar of traditional theories of policy learning, as these require a change or reinterpretation of the policy goal. I argue that Basel II nevertheless represents a radical change to the practice of financial regulatory policy, as the means toward this end were so fundamentally altered, in particular with the acceptance of the banks’ own risk models as regulatory tools. This indicates that the regulators may have altered their understanding of the means-end relationships pertaining to financial regulation, i.e. their understanding of how financial markets function. In the following section, the five most significant features of Basel II are discussed. These are the definition of capital, the expanded provisions for market risk, the reinvention of operational risk, the Internal Ratings-Based approach, and the creation of the three-pillar framework for financial regulation.

3.1.2.1 Expanding the definition of capital

Defining capital might seem a forthright and unproblematic issue. However, what in any given framework is defined as capital and by extension what is allowed to count as part of a bank’s reserves is a contentious issue. As the central tenet of banking regulation in the past decades has been capital adequacy requirements, what banks are allowed to use as capital is of great importance. In general, we can say that banks do not wish to hold (much) capital, as

this is ‘expensive’ because this capital could otherwise be invested elsewhere, earning higher returns.²⁰ The financial sector therefore wants to keep less capital or to be allowed to use cheaper forms of capital than equity capital as part of their cushion.

The Basel II framework expanded the range of securities which could constitute part of a bank’s reserves. This was the topic of the first amendment made to the BCA. In Basel II, the Committee opened for the inclusion of several new forms of capital under the ‘equity capital’ definition, as well as expanding the Tier 2 category and creating a new Tier 3 level. One of the new capital forms permitted were so-called *deferred tax assets*. This concept from the field of accounting refers to assets that arise when there is a temporal discrepancy between the accounting value and the tax value of a company’s asset. This was a highly beneficial capital form for financial institutions, as it was defined as debt by tax authorities and as equity by financial regulators (Wood 2005: 127).

The expansion of the capital definition tells us something about the altered risk-understanding of regulators. Regulatory capital reserves are intended to function as a buffer for financial institutions in times of stress. A desired quality is therefore that the capital is liquid; it has to be readily available on short notice. Banks can then use this capital to meet their obligations in times of stress, when their portfolios may suffer unexpected losses. The belief in the ability of the sector to manage their own risk with new forms of capital is indicative of a regulatory perception of financial markets belonging to a world of risk rather than uncertainty. These hybrid securities were seen as measurable, precisely quantifiable, and liquid enough to serve as a capital buffer.

3.1.2.2. Expanding the provisions for market risk

The second highlighted feature of Basel II is the expanded provisions for market risk (Wood 2005: 125). CARs have traditionally – in both national regulation and at Basel – targeted credit risk, i.e. the risk of a borrower defaulting. Credit risk was the main focus of capital requirements in the BCA. Market risk, to reiterate, may be defined as the risk stemming from market developments such as shifts in interest rates, currency exchange rates, and commodities prices. The increased attention to market risk in regulatory policy reflects its increased importance in financial markets. When many countries adopted floating exchange

²⁰ The assumption that raising capital is expensive is now being convincingly contested by some leading economists (e.g. Admati et. al. 2010), but thus far it still remains ‘conventional wisdom’.

rates after 1971, and liberalized capital flows, this created both opportunities and challenges for financial market institutions. Opportunities arose for the creation of global financial markets and for the reaping of profits from cross-national investment opportunities and arbitrage speculation on international price discrepancies. On the other hand, this globalization of financial markets increased exposure for financial sector institutions (and also non-financial businesses) to market developments beyond their direct control. Developments in market risk and the instruments for dealing with it were fueled by the political liberalization of financial sector activity across many industrialized economies. Regulations such as credit controls were lifted, bans on ‘shorting’ and several other trading strategies were effectively removed, and greater leverage ratios permitted. In combination, these developments made possible a vast expansion of financial markets, both in size and geographical space. The regulatory attention to market risk also came from the fear that commercial banks, by engaging in derivatives, had become as exposed as investment banks to this risk form (Izquierdo 2001: 75). As financial institutions faced greater risk from market developments, it is reasonable that also regulatory authorities devote more attention to this risk form, especially if this risk threatened commercial banks and systemic stability. The increased provisions for market risk are not in themselves indicative of any change in regulatory risk-understanding. Nor does this change alone represent a significant shift in policy. The remarkable aspect of this policy change was rather the specific treatment market risk received in Basel II, as an easily quantifiable form of risk.

Underlying this regulatory change is a belief in the ability to quantify market risk with a significant degree of certainty. Of the three risk forms facing financial institutions, credit risk may be considered the least difficult to quantify, as estimates of default risk are (typically) based on a large amount of historical data incorporating a limited range of factors known to correlate with default. Prior to Basel II, market risk has been considered far more difficult to quantify. Unlike credit risk, market risk is not directly associated with a single individual, company or government. While credit risk is also affected by macro factors, market risk is always an aggregate risk, comprising many complex factors, including the behavior of many individuals, companies and even countries, as well as factors such as climate which can severely affect commodity prices. The Basel Committee nevertheless chose to treat market risk in much the same way it did credit risk. Furthermore, the Committee did this without delimiting the definition of market risk to the more easily quantifiable components, but chose to define it as ‘...all risks pertaining to instruments and equities in the trading book that are

sensitive to changes in interest rates, as well as foreign exchange risk and commodities risk' (BCBS 2006: 157).

3.1.2.3 (Re)Inventing operational risk

Another significant change in Basel II concerns the treatment of operational risk (OR). Where market risk had previously been treated as difficult-to-quantify, OR was seen as an inherently unquantifiable category of risk. Little regulatory attention had in fact been devoted to OR altogether, and it was primarily seen as of concern to the financial market institutions themselves in their internal risk management, where it was treated as a residual risk category (Power 2005: 577). Operational risk was a category in which to lump all threats that could not be labeled under credit or market risk, and which could not be specified in such a way as to facilitate probabilistic modeling, and was often termed non-financial risk (Power 2007: 103). Basel II represents the first case in which OR not only received regulatory attention, but was treated with great optimism with regard to quantification.

The 'invention' of operational risk is often accredited to Nick Leeson. The Singapore-based trader for Barings Bank conducted a series of large, unauthorized trades in the mid 1990s, the losses on which were of such a magnitude that his employer Barings Bank was forced to file for bankruptcy. The collapse of one of Britain's oldest financial institutions on account of the action of a single rogue trader brought operational risk to the attention of the financial world. Although this category of risk had existed in the risk management vocabulary of the financial sector prior to Barings' collapse, Power (2007: 103) argues that this one event led to the 'rationalization, expansion and institutionalization' of operational risk as a risk category worthy of serious managerial attention. The regulatory treatment OR received in Basel II can be interpreted as a response to the institutionalization of this risk form in the financial sector. If the Committee expected the financial sector to move toward greater emphasis on (and quantitative modeling of) operational risk, it was understandable that they try to anticipate these developments in the second framework, enabling the accord to fit such a future scenario. Yet, operational risk is still defined broadly in Basel II, as 'the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events' (BCBS 2006: 144). Nonetheless, the new Advanced Measurement Approach (AMA) to operational risk illustrates the Committee's confidence in the ability of the sector to precisely quantify this risk form, enabling OR to be more closely tied to the calculation of CARs. It is however

important not to exaggerate the BCBS' position, as there is still some recognition of the uncertainty in this risk category, in Basel II. In particular, the Committee highlights that 'reputational risk' and 'strategic risk' may be difficult to measure. Yet even here the BCBS displays their faith in the progress of risk management, in that they encourage the financial sector '...to further develop techniques for managing all aspects of these risks' (BCBS 2006: 208).

3.1.2.4 The internal ratings based approach

The fourth and most 'Copernican' of the changes in Basel II was the decision to let (certain) banks use their internal risk models to calculate risk exposure and thus the level of capital they are required to keep. The Committee opened for the use of internal risk models to calculate CARs in the second of the two amendments issued in 1996 (Wood 2005: 126). With the *Internal Ratings-based approach* (IRB), banks with preapproved and stress-tested risk management systems may calculate their own risk exposure and required capital level. With the IRB, CARs target internal control systems rather than the real investment portfolios of banks (Izquierdo 2001: 74). This represents a radical change in regulatory policy, in that a technological system proprietary to the financial sector is used as an instrument for regulatory policy. These are instruments over which regulators have no formal ownership and little control.

Despite some controversy, the IRB amendment was incorporated into Basel II. In the framework the banks are given the choice between three approaches to the estimation of CARs: One *Standardized approach* and two different methods for using internal ratings, the *Foundational* and the *Advanced Internal Ratings Based Approach* (F-IRB and A-IRB, respectively). As the name indicates, the Standardized Approach is the 'old' method for estimating a bank's risk exposure and capital requirements. In this approach, the base on which to estimate CARs is a combination of the five-bucket system from the original BCA and the asset risk ratings offered by Nationally Recognized Statistical Rating Organizations (NRSROs) such as Moody's and Standard & Poor's. The credit ratings are used to estimate the bank's risk exposure, and the capital ratio is then calculated from these inputs and the requirements of the BCBS' system for risk-weighting. The two IRB approaches permit banks to use risk-evaluations derived from their internal models instead.²¹ The freedom of banks to

²¹ The difference between the Foundational-IRB and the Advanced-IRB is one of degree.

choose between these three approaches is subject to a prior regulatory approval of their risk management systems. The ‘default option’ is then the Standardized approach, while a bank’s risk management systems needs to meet certain regulatory requirements in order to qualify for any of the IRB-options. Although a bank is still free to choose a ‘lower’ approach than it qualifies for, the wording in the treaty document is indicative of the Committee’s belief that it is in a bank’s interest to choose the most sophisticated approach possible given their risk management resources. The ‘interest’ in this respect is the potential for lowering capital requirements.²²

There are four aspects of the IRB approach that justify labeling it a radical shift in policy. Above all, IRB entails that regulators are using a policy tool that is proprietary to the financial sector. Although the Committee sought to control these models by way of approval and stress-testing, they do not have formal ownership and in practice little control over the ways in which this technology is used. The decision to use the sector’s own risk models also tells us that the BCBS believed this technology to be neutral, and furthermore that in the practice of prudent risk management the interests of the financial sector and of regulators were aligned. This re-conceptualization of the relationship between the sector and their regulators is discussed in section 4.4. Another important aspect is the emphasis on quantitative measurement of risk that underpins the IRB approach. Although CARs in general can be seen as a policy that acknowledges uncertainty, the use of risk models relying on precise quantitative measures of risk push CARs as a policy instrument toward the risk-end of the spectrum. Finally, the IRB approach represents a significant regulatory innovation that occurred on the international level. None of the Committee members had any experience with the IRB-approach from their national regulatory work.

3.1.2.5 The three-pillar system for regulation

With the IRB approach, new regulatory challenges surfaced. To alleviate the problems associated with using the sector’s own models as regulatory tools, and ensure some level of control, the BCBS introduced a novel three-pillar system for regulation in Basel II²³. The Committee supplemented the traditional capital requirements with supervisory guidelines and

²² It is difficult to establish with certainty if the Committee intended for the IRB approaches to lower CARs for the large investment banks able to use IRB. However, the Quantitative Impact Studies conducted during the policy process suggested the IRB would have this effect.

²³ This three-pillar system has received wide acclaim and been used as model for other regulatory frameworks, for example the new EU framework for insurance regulation, *Solvens II*.

measures to strengthen inter-market self-discipline. The remainders of the first Capital Accord and the changes introduced above were gathered under the new first pillar, titled *Minimum Capital Requirements*. Capital requirements remained the core focus of Basel policy in Basel II, yet two new pillars of regulation were added.

The first of these new pillars – pillar 2 – was titled *Supervisory Review Process*. Here, the Committee details guidelines for prudent supervision of the sector's risk management systems. The banks are 'encouraged to develop and use better risk management techniques in monitoring and managing their risks' (BCBS 2006: 204). National regulators are encouraged to pay attention to the sector's risk management practices and intervene before capital ratios go below the minimum requirement in any given. The 'principles for supervisory review' are also aimed at the banks' own risk officers, senior management and board. With IRB, regulatory influence is limited to arms-length supervision once a bank's risk model has been approved. As the Committee itself acknowledges, all banks do not have the same definitions of the various asset risks that serve as inputs to these models. Rather than force a standardization as a prerequisite for a model's approval, the Committee explicitly states that it is not their intention '...to require banks to change the way they manage their risk' (BCBS 2006: 52). Instead, banks must 'demonstrate' to regulators that their internal methodology is both appropriate for the task and consistent over time. The emphasis in the second pillar is on voluntary guidelines, and it includes few measures wherein regulators can force standards of practice on the financial sector.

The third pillar places a strong emphasis on the ability of the financial sector to self-regulate. Pillar 3 is called *Market Discipline* and aims to use market mechanisms to discipline sector institutions to manage their risks prudently, primarily through strengthening principles for transparency. With transparency and disclosure of capital levels and risk management practices, the market is thought able to punish and reward financial institutions for the quality of their risk management practices through affecting the cost of raising capital and the stock price for the institution in question. The BCBS proposes a set of disclosure requirements that would give market participants access to key information about a given financial institution's capital level, risk exposure and 'risk assessment processes' (BCBS 2006: 226). Since the Asia crisis regulators have placed a high premium on transparency (cf. BIS 1998: 169), and this

regulatory approach is based on a belief that market actors will automatically and rationally respond to information.²⁴

3.2 Regulatory risk-understanding and Basel II

Viewed together, the policy changes in Basel II and the novelty of the framework's three-pillar structure reflect a shift in regulatory risk-understanding. With Basel II, financial regulation has moved firmly toward the risk-end of the risk/uncertainty spectrum, as the framework by and large treats the threats facing financial institutions as quantifiable and suitable for probabilistic modeling. Even market risk and operational risk, forms of risk previously considered difficult to quantify, were included into the basis for estimating CARs. The IRB approach can be interpreted as representing a belief in the ability to identify and ascribe precise probabilities to the wide range of risks facing financial institutions. Hybrid securities were considered to be risk-managed in such a way that they would be liquid enough to function as reserve capital in times of crisis, and were thus included in the capital definition.

While the abovementioned features serve to indicate what the risk-understanding changed *to*, it is important also to discuss what the risk-understanding changed *from*, in order to establish a basis for comparison. CARs have traditionally been a policy measure that in its very nature acknowledges uncertainty in financial markets, as CARs force banks to hold capital in reserve to cover unexpected losses. The crude, five-bucket system of risk-weighting introduced in the original BCA was in Basel II abandoned in favor of the sophisticated, fine-meshed risk-weighting of the sector's own risk models. The difference between the BCA and Basel II must however not be exaggerated as it is not a clear-cut one. In its risk-weighting, albeit crude by the standards of Basel II, the BCA emphasizes risk-adjusted capital requirements as opposed to rigid, uniform rules. Yet Basel II carries this approach much further, in its belief in the ability of the financial sector itself to quantitatively manage all aspects of financial risk. The following chapter seeks to understand the origin of this shift in risk-understanding, starting with the academic ideas of portfolio theory, and tracing these through their effects on financial market risk management practices and to their expression in regulatory policy.

²⁴ This can be linked to the Efficient Market Hypothesis, which will briefly be discussed in chapter 4.

Chapter 4 Ideas, interests and institutions in the redefining of risk

This chapter seeks to understand the radical change to financial regulation, represented by Basel II, through a set of interlinked processes that combined to alter the risk-understanding of financial markets actors and their regulators. Using the theoretical and methodological framework laid out in chapter 2, I examine the processes through which a set of ideas from MPT brought about changes to the regulatory regime. The paths through which these ideas came to affect the risk-understanding of regulators are highly complex and intertwined. As argued in chapter two, an analytical choice is made to distinguish and separate four aspects of this complex process: (1) the inherent properties of these ideas that fostered a particular understanding of risk, (2) the processes of interpretation, transformation and expansion into risk management systems that these ideas spurred upon introduction to the financial sector, (3) the regulatory dynamics that gave these risk management systems legitimacy as regulatory instruments, and finally, (4) the strategic use of these ideas and technologies by the financial sector in their campaign for beneficial regulatory policies. This selection is reproachable to the extent that these parts of the process are difficult to distinguish from each other entirely, particularly the latter two. However, these factors are sufficiently differentiated along a temporal dimension so as to be able to discuss them separately in a meaningful way. Distinguishing these factors and mechanisms chronologically is thus proposed as the most fruitful way to analyze the processes through which the ideas from MPT came to affect regulatory policy.

The chapter is structured as follows: Section 4.1 is devoted to the ideas, looking at the history and success of MPT. I here make the argument that part of the explanation for the outcome of interest in this study lies in the inherent qualities of these theories. The institutional dynamics are covered in sections 4.2 and 4.3. First, the internal processes in the financial sector institutions are analyzed, with emphasis on the institutional dynamics through which these ideas were transformed into broader systems of risk management. Second, the institutional dynamics within the Basel Committee are examined, analyzing the policy change with the aid of theories of learning. The role of strategic behavior and conflicts of interest is the focus of section 4.4. Here, the strategic use of these ideas and technological innovations by the financial sector in their lobbying efforts is sought understood. Basel II is treated in much of the literature as a case of regulatory capture by the sector lobby. In this chapter the argument is made that this “conventional answer” needs to be nuanced in light of the three prior factors involved in the process. The inherent properties of these ideas, and the ways in which they

were used and understood by financial practitioners and by their regulators constitute the ideational foundation that would come to structure the relationship between the sector and its regulators, making regulatory capture possible. Finally, section 4.5 sums up the discussion in this chapter, discussing the strengths and weaknesses of this analysis.

4.1 Connecting risk and return – the birth of a science

The origin of this policy change is argued to be a set of ideas within neoclassical economics²⁵ and its branch of finance theory, often referred to as *modern portfolio theory* (MPT).²⁶ The inherent conceptualization of risk that characterizes these theories fostered a particular risk-understanding amongst both regulators and practitioners in financial markets – where these ideas were used beyond their intended scope of application. This section introduces MPT, its theoretical foundations and central contributions. It furthermore analyzes the processes through which MPT gained academic and industrial legitimacy, enabling these ideas to profoundly influence risk management practice in the financial sector and the risk-understanding of the actors involved.

4.1.1 Modern portfolio theory – the scientific study of finance

MPT emerged as a distinct and unified approach to finance after World War II, although it builds on contributions made much earlier.²⁷ This approach represented a clear break with previous studies of finance, and MPT would also come to change the institutional standing of finance studies within the economics discipline. Prior to MPT, finance enjoyed little prestige and attention in economics, and scholars working on finance were seldom employed by economics departments. Rather, there existed a clear division of labor between theorists (other economists) and ‘practitioners’ – the scholars of finance who taught at the university business schools (MacKenzie 2006; Triana 2009). One explanation for this failure to recognize traditional finance theory within economics is the lack of formalization that characterized

²⁵ ‘Neoclassical economics’ is here used to denote the paradigm within economics which combines formalism, quantification and a neoclassical belief in self-adjusting and self-stabilizing markets (Wade 2009: 108).

²⁶ Labeling these theoretical developments as MPT is not unproblematic. A distinction can be made between portfolio theory and the theory of option pricing. For the purpose of this analysis, these developments are viewed together. However, in order to understand the more subtle differences between risk models used in the sector, this distinction is important. The Value-at-Risk model is inspired by portfolio theory (in the narrow sense) and is based on historical correlations and measures of volatility. The RAROC and ROCAR models, in contrast, use risk parameters like *gamma*, *delta*, *beta* etc., derived from option-pricing theory (Izquierdo 2001: 77-8).

²⁷ For the 300-year history of the Black-Scholes-Merton model, see George Szpiro (2012) *Pricing the Future*. London: Basic Books.

much of this research. Traditional finance theory was based on case studies and fundamental analysis, trying to establish patterns in investor behavior. It was not based on a shared, coherent set of underlying assumptions, and was not formalized through mathematical models, perhaps the most important criteria by which economic research is judged within the neoclassical paradigm. In its use of mathematics – in the form of double integrals, differential equations and complex stochastic modeling – MPT would become the most rigorous of fields within economics. Finance became the most prestigious of research topics, its practitioners becoming the stars of their employing departments, a transformation referred to as the ‘academicization of US business schools’ (MacKenzie 2006: 244). The MPT scholars themselves viewed this as a transformation of finance theory into a ‘real science’ from what had been ‘little more than a collection of anecdotes, rules of thumb, and [the] shuffling of accounting data’ (Merton 1997).

4.1.1.1 Intellectual foundations and central assumptions

The academic success and status of MPT can be attributed to its use of mathematics and physics. The thermo-nuclear theory of Brownian motions developed by Albert Einstein (1905), demonstrating the random movement of particles, was an important source of inspiration.²⁸ Because a stock price can never fall below 0 in a market with limited liability, Paul Samuelson converted Einstein’s arithmetic Brownian motion to a geometric function in order to apply it to finance, creating a log-normal ‘random walk’ (MacKenzie 2006: 64). The assertion that stock prices follow a random walk would have a tremendous impact on the study of finance. With this assumption, much of traditional finance theory became irrelevant almost by definition. Viewing price changes this way enabled scholars to disregard the social nature of human decision-making and instead use rigorous mathematics in the scientific study of prices. The ‘random walk’ assumption underpinned the early contributions to MPT, and was further developed into the *Efficient Market Hypothesis* (EMH) by Eugene Fama in 1965,²⁹ and the later contributions to MPT were founded on the EMH. While there are differences of interpretation regarding what exactly the EMH posits, it is commonly referred to as the assumption that the current market price fully reflects all available information, past

²⁸ Brownian motions are typically attributed to Einstein and physics, but mathematicians Louis Bachelier and Henri Poincare had made the case for such random movements in their studies of finance, published several decades prior to Einstein’s paper (Fox 2009; MacKenzie 2006).

²⁹ Fama completed his PhD and published a paper on efficient markets in a non-academic journal in 1965. However, his 1970 paper published in *The Journal of Finance*, titled ‘Efficient Capital Markets’ is the common reference for EMH.

and present, making it difficult for an individual investor to “beat the market”. The EMH assumes therefore that all opportunities for arbitrage are already seized by agents in the market (Eatwell and Taylor 2000: 56). This assumption, in effect claiming that there can be no price misalignments in a market with access to third parties, has implications for how the possibilities of booms, busts and crises are viewed. MPT furthermore rests on the assumption that agents in the market have rational expectations. Rational expectations is a variant of the more general postulations of rational choice: In addition to being utility-maximizing, and having stable, transitive and exogenously given preferences, individuals are also able to perfectly incorporate future costs and benefits in their calculation of alternative decision paths today. Another assumption underpinning these theories is that prices are normally distributed, and the likelihood of extreme events is considered small.

4.1.1.2 Key contributions

The theoretical questions addressed by many of the contributions to MPT revolve around the optimal composition of an investment portfolio. The “scientific revolution” that occurred within finance theory came from the recognition that any good answer to this question must systematically and mathematically frame the relationship between risk and return. The first of these contributions marking a shift in the treatment of risk is Harry Markowitz’ 1952-article in *The Journal of Finance*, titled ‘Portfolio Selection’. The novelty and usefulness of Markowitz’ contribution was his specification of the necessary components of any mathematical model for constructing the most efficient portfolio, defined as the portfolio obtaining the maximum return given an investor’s desired and pre-determined level of risk. Markowitz (1952: 89) argued that the frequently used investor terms ‘yield’ and ‘risk’ should be replaced by the more precise concepts of ‘expected yield/ return’ and ‘variance of return’. He further specified that any model to identify the optimal portfolio must incorporate quantifiable measures of two central components: *volatility* and *correlation*. In defining as quantifiable what previously had been treated as difficult-to-measure components of investor decisions, Markowitz laid the foundation for much of the pioneering work that was to follow. This way of understanding risk that was first and most explicitly expressed in Markowitz’ work would radically change not only theory, but also the practice of finance, as it put mathematics ‘at the heart of modern banking’ (Lanchester 2010: 128).

The contributions that followed developed Markowitz' insights further, applying models to specific instruments, trades and markets. During the 1960s the Capital Asset Pricing Model (CAPM) emerged, and the model that would come to have the greatest impact on financial markets was a particular version of the CAPM that was developed in the early 1970s. The model was formally published in 1973, in two academic articles which both derived essentially the same new, mathematically sophisticated model for option pricing (Black and Scholes 1973; Merton 1973). These two contributions have since been viewed together, and the joint model became known as the *Black-Scholes-Merton* model (BSM) after its three original contributors, Fischer Black, Myron Scholes and Robert C. Merton. The BSM is broadly considered the 'crowning achievement' of modern financial economics (Millo and MacKenzie 2009: 639; Triana 2009: 178). This model and its various later expressions received broad acclaim amongst economists, even among those who expressed doubt about some of the underlying assumptions of MPT, as was the case with Merton's mentor Paul Samuelson (MacKenzie 2006: 31).

4.1.2 Gaining intellectual and industrial legitimacy

In seeking to examine the effect of these theories on financial practice and on the regulatory perception of financial markets, it is important to examine the processes through which these ideas gained broader legitimacy. Before addressing this, it is important to note the lack of alternative schools of thinking to challenge MPT. As traditional finance theory had lost standing and supporters, and no other theoretical approach to finance was in a strong enough position to compete, MPT progressed virtually unchallenged in economic theory. Although developed much earlier, behavioral economics did not get picked up until the 1990s (MacKenzie 2006: 246). When behavioral economics eventually entered the academic scene it was not welcomed by the central scholars of MPT, and failed to become mainstream. Merton Miller is known for his quip concerning Kahneman and Tversky, two leading behavioral economists: "What can the poor kids do? The field of finance is kind of a mature field now" (Miller, quoted in MacKenzie 2006: 367). Even more serious considerations of behavioral contributions concluded in a similar manner. Eugene Fama claimed that the market anomalies detected by behavioral scholars, put forward as an argument *against* EMH and MPT, did not in any way threaten the field.

'[The] apparent overreaction of stock prices to information is about as common as underreaction. And post-event continuation of pre-event abnormal returns is just about as frequent as post-event reversals' (Fama, quoted in Bernstein 2007: 30).

MPT scholars believed themselves to have uncovered the laws of finance, and there was little room for further contributions. Given the prominence of expert influence on the field of financial regulation, the ideational hegemony of MPT likely had important implications for policy-making.

4.1.2.1 Awarding MPT the ‘Nobel’ prize

One important factor in the spread of MPT was the legitimizing effect granted by the “Nobel prizes” awarded several of the contributors. Markowitz shared the *Sveriges Riksbank’s Economics Prize in Memory of Albert Nobel* in 1990, and the BSM was honored in 1997, when the prize went to Robert C. Merton and Myron Scholes.³⁰ The official prize motivation statement hailed Merton and Scholes’ work and the BSM because it had ‘...generated new financial instruments and [had] *facilitated more efficient risk management in society*’ (The Nobel Foundation 1997, emphasis added). Awarding the prize to the contributors of MPT increased the standing of these theories in academia and beyond. The prizes were furthermore actively used in the marketing of BSM-based risk management tools in the financial sector, as software companies selling risk models advertised them as ‘Nobel-crowned methods’ for risk management (Taleb 2007: 277). Triana (2009: 312) argues that the legitimacy derived from these prizes helped these theories deflect any criticism.

4.1.2.2. Opportunities for hedging and speculation

The development of MPT coincided with a specific historical juncture for financial markets. Starting with developments at the macro level, the transition to fluctuating interest rates in 1971 is of crucial importance. Under the Bretton Woods regime, governments in effect bore the currency risk facing companies operating internationally. In a system of fluctuating interest rates, in contrast, businesses are directly exposed to market risk in the form of currency risk. This new exposure spurred a demand for financial instruments to hedge against this risk (and for some actors, to speculate on it). Developments in mathematical modeling, originating in MPT, enabled the financial sector to meet this demand, with tremendous innovation in the range of financial products on offer. The combination of fluctuating currency rates, political liberalization, ICT developments and the mathematical models available, fundamentally changed financial markets.

³⁰ The official prize motivation included an acknowledgement of Fischer Black, who had passed away in 1995.

On an institutional, meso-level in the political economy, another factor of timing is important for the diffusion of the BSM. In April 1973, less than two weeks before the publication of the two BSM-papers, the first derivatives exchange opened in the US (Fox 2009: 145). The *Chicago Board of Options Exchange* (CBOE) became the first institutional exchange for standardized stock options. Besides creating a demand for models with which to price these options, the CBOE also represented a direct relationship between the market and the BSM. The investment bank *Donaldson, Lufkin and Jenrette* (DLJ), central to the creation of the over-the-counter (OTC) options market, was also active in the establishment of the CBOE. The first chairman of the CBOE, Joe Pomerance, was formerly the head of DLJ's options department. Having already heard of the BSM prior to its publication, DLJ hired Merton and Scholes to develop hedging and pricing tools for them a year before the new exchange opened. When the CBOE did open, its management and that of DLJ invited the two scholars to collaborate with the traders on the exchange floor. The management hoped that the use of these mathematical theories could lend legitimacy to a market which at the time was met with much skepticism from other parts of the financial markets and from the regulators, who considered options trading to be 'reckless gambling' (Triana 2009: XLVI). In the decades that followed, the BSM model and other versions of the CAPM would become by far the most dominant in the market, even where competing models existed. The BSM had an advantage over competing models in that it was academically published, and therefore freely available in a way proprietary models developed in specific consultancy or trading firms were not (MacKenzie 2006: 245).

The combination of a new demand (for easing exposure to market risk), and a new ability to meet this demand (from technical progress and political deregulation) enabled financial markets to expand to unprecedented levels in the three decades prior to the crisis. There are two central features to this expansion: securitization and derivatives. *Securitization* is a practice wherein banks move loans off their own balance sheets and sell them on to other investors. The loans are first moved to a separate legal entity called a special purpose vehicle, wherein different types of loans are combined in a pool of loans which is subsequently sliced into bonds that are sold on to investors. All or parts of the default risk on these loans now lies with the investor who purchases the bond. As loans are moved off the original bank's balance sheet, they do not count toward the regulatory capital requirements. On account of this circumvention of capital requirements, securitization has enabled a vast expansion of credit in

the global economy.³¹ Securitization has advantages also from the viewpoint of the investor in securitized loans. Gorton and Metrick (2010: 12) argue that securitization has been successful in part because it creates ‘information-insensitive’ debt. Through the process of securitization it is possible to invest relatively safely, without knowing a great deal about the underlying asset or the counterparties involved. The pooling and slicing of loans lets the investor buy rights to part of the income stream generated from payments on the principal and interest on these loans, yet her exposure is not to any individual default, but rather to the default rate of the aggregate pool of loans. Consider by contrast the range of information which a traditional lender – being exposed to all of the default risk – would need in order to be able to make a prudent lending decision. Securitization was made possible through the technologies of risk modeling, wherein credit risk is given a precise quantifiable measure. On the basis of this measure, investors are able to construct their portfolio according to their preferred level of risk.

The second important development is the growth in trading of *financial derivatives*. A derivative is a financial contract wherein the contract holder has either the obligation or the duty to buy or sell a financial instrument at some future time. The price of the contract derives its value from the value of the underlying financial instrument, index or interest rate (Fabozzi 2002: 12). Derivatives are used in order to hedge against risk, and for arbitrage, again reflecting the double role of risk in financial markets. The majority of these contracts are traded privately, (OTC), and this segment of the financial market is therefore extremely opaque, difficult to estimate in terms of size and impact, let alone supervise and regulate. Until the 1980s the market for exotic derivatives remained small. Johnson and Kwak (2010: 79) argue that the reason for this is that traders had great difficulty calculating the worth of these instruments, a problem that was alleviated with the arrival of the BSM. With the aid of these models, a broad range of financial derivatives were created and traded in the financial sector, and used also by non-financial companies. As it is possible to write multiple derivative contracts on one underlying entity, the market has expanded in numerical value to what is many times the global GDP. In the late 1980s the global derivatives market was a mere \$10

³¹ Securitization is regulated very differently in national frameworks, and the Basel Committee has not as of yet issued any common principles for this practice. National differences relate to the extent to which securitization is permitted, and on what kind of loans, the degree to which the loan-issuing bank has to keep parts of their debt on their own books to retain some ‘skin in the game’, and the reporting requirements involved in securitization.

trillion in notional value. By 2007 the market had reached \$760 trillion (Das 2011: 271).³² The increasing role of derivatives and other complex securities in financial markets was an important factor in prompting the Committee to revise the BCA. The expansion of derivatives and securitization had exposed also commercial banks to market risk, traditionally a risk of primary concern to investment banking. Market risk had now entered the jurisdiction of general banking regulation.

4.1.3 The quantification of risk and its effects on risk-understanding

Rather than dealing with risk as something external and intangible relating to economic decisions, risk was now placed at the center of investment decisions. Risk was defined narrowly as the volatility of returns around the expected mean.³³ This risk was treated as a risk proper, possible to measure quantitatively and model probabilistically. As the financial sector took to using these models, they were applied to manage risk in the broader meaning. For securitization, a quantitative measure was given to the default risk associated with various loans, a risk compromising a range of complex and uncertain factors, some of which are macro level. With the help of MPT-based models, the financial sector believed itself able to encapsulate these complex factors into a single, quantitative measure of risk. Securitization and derivatives had created a market wherein risk was traded as though it was an asset class in its own right.

4.2 Institutional dynamics I – From risk calculation to risk management

The section above introduced MPT, its diffusion and conceptualization of risk. Establishing that this set of ideas inherently embodies a particular way of defining risk is not sufficient to account for the regulatory change represented by Basel II, which is argued to be the result of an altered risk-understanding in regulators. Although the influence of these ideas to some extent worked directly, from academia to acceptance by the economists in the Committee, this was not the primary mechanism for diffusion. The most important effect of these ideas worked indirectly, through the ways in which they came to change the risk management practices in the financial sector. This part of the process is the focus of this section, which takes a ‘sociological approach’ in its examination of the development of risk management

³² In contrast, global GDP had not passed \$60 tn at this point

³³ The risk premium of a given security, λ , is calculated by subtracting the rate of riskless return, r , from the expected return, μ , and dividing this by the security’s risk, σ .

practices in the sector. It begins by analyzing the general developments in risk management, looking at how models for risk calculation developed into broader systems for risk management. The Value of Risk (VaR) is examined in particular, as this model is widely used and also received regulatory approval. The lack of critical reflection around these systems, even following severe performance crises, is the subject of subsection 4.2.4. Finally, the emergence of a risk management culture is discussed.

4.2.1 The fusion of knowledge and practice

While models such as the BSM were created for the pricing of exotic financial instruments and for portfolio diversification, they were quickly transformed by actors in financial markets to suit a new sphere of application as broader risk management tools. From being methods for calculating risk, these technologies morphed into systems for risk *management*. Millo and MacKenzie (2009) see management as the ‘fusion of knowledge and practice’. Management thus requires both technological tools and a set of intersubjective beliefs that in combination can regulate and govern action within an organizational sphere.

A substantial transformation is required in order for models for option pricing and portfolio diversification to become all-encompassing risk management systems governing action in large, complex financial institutions. Even before these models were moved to new areas of use, they were constantly being recalibrated also for their intended purpose. In the academic BSM model, a given measure of volatility is used to arrive at the correct price for an option. In practice, market actors often use the market price of an option as an input, in order to arrive at a measure for volatility to be used in a second modeling operation, in effect turning the model on its head (Ayache 2010). The models derived from MPT were involved in a continuous transformation process wherein individuals and social processes shaped the way they were used.

These models became the basis for developing institution-wide, all-encompassing systems for risk management. Most famous among these is VaR, which attempts to quantitatively estimate the maximum loss an institution could suffer on a diversified portfolio, as a consequence of adverse movements in the prices coordinated across different markets, instruments, maturities or countries (Izquierdo 2001: 76-77). These models seek to identify the relationship between prices, volatility and correlation, and give the management of an institution a measure for the maximum pecuniary loss, attached to a quantitative probability of

occurrence, and set at a given statistical level of confidence. These models present the management with a simple, clear-cut figure on which to base decisions concerning the institution's risk level.

The application of such models on the top organizational level and for overall risk management purposes posed challenges for the senior management. These institutions were forced to strike a balance between the desire for overarching systems of risk management applicable to all of the institution's activities, and the need to leave these risk models in the hands of those parts of the organization with the technical and mathematical know-how required to not only run these models, but also understand the meaning and limitations of inputs and outputs. The evolution of these risk management systems were affected by decisions concerning at which level in the organization the risk models were to be placed, and under whose authority. A new knowledge-form emerged – model-based risk management – and this combined with new practices based on this knowledge to change the knowledge-related power relations within financial institutions (Millo and MacKenzie 2009: 644).

4.2.2 Professional competition for ownership

As these risk management models became increasingly important for financial institutions, control of them was a natural source of power within the organization. Abbott (1988: 86-88) has detailed how 'jurisdictional vacancies' arise when new knowledge forms or technologies emerge, and how professional groups struggle to define this new knowledge as proprietary to them. In order to examine the social processes through which these risk management practices were formed, it is useful to conceive of two competing professional groups in this respect: the 'traders' – defined broadly as quants, traders and analysts, and the 'accountants' – defined broadly as managers, back-office staff and internal auditors.³⁴ This picture is empirically less cut-and-dry, but this dichotomy illustrates for analytical purposes the different "logics of practice" that exist in financial institutions. The traders are at the heart of the short-term revenue generating activities, actively seeking opportunities to profit from risk-taking. The accountants are concerned with the long-term profitability of their organization, with curbing

³⁴ The arrival of this new technology also changed the generational relationships within banks. Whilst trading has traditionally been a skill learned through apprenticeship, younger traders are now often educated in natural sciences and hired to run models with which the older staff are not familiar with. Millo and MacKenzie (2008: 15) show that younger traders use model-outputs as support for taking trading decisions that run counter to advice from senior staff.

excessive risk-taking, and ensuring that activities conform to the standards of law, financial regulation and accounting.

Unfortunately, few studies exist of the internal processes in financial institutions from this perspective, and data is hard to come by. Michael Power (2005; 2007) has studied the development of an ‘audit society’ of risk management more generally, but with case studies from finance. He concludes that the accountants have come out of this process with increased authority in their organizations:

‘The transformation of internal control into risk management gives accountants in general and internal auditors in particular a professional potential in the world of risk management as carriers of a new kind of risk knowledge’ (Power 2007: 36).

As risk management became more technical and quantitatively precise, risk managers saw themselves as carriers of a distinct skill-set, leading to the emergence of a new profession, with job titles such as ‘risk officer’ and ‘risk manager’. The *Chief Risk Officer* (CRO) became a new top-managerial position, often second only to the CEO. As with back-office functions in general, risk management positions were not considered to be the most thrilling of jobs within financial institutions. Yet the compensation levels of some of these employees exceeded that of traders, traditionally the highest paid group within banks (Taleb 2004: 40), a fact which illustrates the value attached to this function.

As this new profession of risk managers emerged, so did both national and international professional organizations. The Global Association of Risk Professionals (GARP) was established in 1996, with a membership of more than 150 000 as of 2012 (www.garp.org). The establishment of organizations such as this represents an institutionalization of risk management as a distinct knowledge-form and profession. In his testimony to the US Financial Crisis Inquiry Commission (FCIC), Goldman Sachs’ CRO Craig Broderick described the internal power relations within his firm: Risk officers are entirely independent from the revenue-generating parts of the organization, and these risk officers are the ones who set the parameters of the risk management models. In any conflict, the risk officers ‘always have the final say’.³⁵ The former CRO of Citibank, David Bushnell, described the position of Citigroup’s risk department in much the same way.³⁶ Risk professionals, largely arising out of

³⁵ Testimony to the Commission on June 30 2010. The statement in full is available at www.fcic.gov.

³⁶ Citigroup Inc Former Chief Risk Officer, David Bushnell in testimony to the FCIC on 7 April 2010. Available at www.fcic.gov.

the traditional ‘accounting’ positions, have gained considerable position within financial organizations.

4.2.3 The rise of Value at Risk

The VaR model originated in the late 1980s at the Wall Street investment bank JP Morgan³⁷ when CEO Dennis Weatherstone demanded a report toward the end of each trading day in which he wanted a single number indicating what his bank could lose in the next trading day. Within a couple of years, the “4.15 Report” had become a common management tool in the sector. Other risk management systems under development at the same time were built to calculate the relationship between risk and return for a given institution rather than the potential loss figure in absolute terms. The RAROC model (Risk Adjusted Return on Capital) was first developed at Banker’s Trust, while the similar ROCAR model (Return on Capital at Risk) emerged in other institutions.³⁸ As quantitative risk management practices spread, some financial institutions chose to copy JP Morgan’s VaR model, others went for ROCAR or RAROC, and in many cases these systems were combined, albeit in different ways. Jameson (2001) shows how the development and use of such systems were shaped by specific institutional conditions and individual decisions within an organization. Jameson’s two cases, *Svenska Enskilda Banken* and *Wachovia*, illustrate how financial organizations differ in terms of which department is given responsibility for the risk management systems, how RAROC, ROCAR and VaR are combined, how risk measures are weighted in the process of aggregation, and on which statistical confidence level the models are set.

The rest of this section focuses on VaR, as this model most explicitly informed regulatory reform. From its relatively crude beginnings, VaR was developed to include comparative risk measures of different departments and trading desks, showing profitability in relation to risk. In JP Morgan this development was pushed by the younger derivatives team. This new generation of quants, often met with skepticism from the more traditional segments of their employing institutions, were eager to demonstrate that their activities and product innovations were both more profitable *and* less risky than more traditional departments such as corporate lending (Tett 2009: 58). Here, the ‘trader’ logic coincided with the ‘accountant’ logic, as specifying risks not only on the institutional level but also at the department and trading desk level served dual purposes. It satisfied a managerial need to have a detailed overview over the

³⁷ As a result of a merger with Manhattan Chase, this bank is now called J.P. Morgan Chase.

³⁸ RAROC and ROCAR examine the same basic relationship but differ with respect to which is the numerator and which is set as denominator in this relationship.

risks different departments were running, as well as illustrating profitability contra risk across competing trading desks.

The move from being option pricing models to becoming broad risk management systems gave rise to several challenges. In general, the assumption required for the BSM to work is that price volatility is normally distributed and that there is enough historical data on which to run the model. The amount of historical data incorporated into VaR ranged from merely a few months and up to a year (Triana 2009: 129). As the financial sector created novel financial products, historical data was hard to come by. These new financial instruments were also more complex than the standard option, and their volatility followed different patterns than what had been the historical experience with standard options. When inputs such as correlation estimates were lacking, they were decided upon after discussions amongst key individuals within the institutions (MacKenzie 2011).

VaR became a useful organizational tool, as it facilitated communication across different departments within an institution. The model enabled the management to judge the risk associated with new financial instruments, making pricing and trading of these possible. VaR also helped compare an institution with its competitors. Communication between sector institutions and their regulators was also enhanced by the diffusion of VaR, as it created a simple language of risk through which regulatory discussions could take place (Millo and MacKenzie 2009). The belief in the value of these management systems spread to regulators, who in Basel II explicitly acknowledged VaR, and through the IRB-approach gave banks the option to use VaR to assess their own risk level. In sum, these risk models came to serve several purposes as they were applied to organization-wide risk management practices. The usefulness of these risk management systems for both the sector and the regulators can possibly explain why these systems were embraced even when they proved to be flawed. In the same period as these risk management systems were being spread and hailed, financial markets experienced many crises, several of which were severe in magnitude and consequence.

4.2.4 The performance crises that never were

The increased frequency of crises in this period serves as a stark contrast to the proclaimed virtues of these risk models. Once norms and practices become institutionalized within an

organization, it can withstand what external actors might see as pressures for change due to performance failure. The concept of institutional inertia provides a good explanation for why underperforming institutions may survive. As these new risk management systems served organizational and communicative functions, it is possible to understand why these models remained an integral part of financial practice despite inaccuracies and flaws. Yet, what historical institutionalist theory leads us to expect is that in the case of severe performance crises, even institutionalized norms and practices are reexamined, and institutional equilibriums are ‘punctured’. This section discusses two such crises for MPT-based risk models. Neither of these crises were in the broader discourse interpreted as ‘performance crises’, and they failed to produce a fundamental reevaluation of these models and practices. Only minor corrections resulted.³⁹

The first of these crises is the stock market crash of 19 October 1987, when the Dow Jones dropped 22 %. Disagreement persists as to what precisely caused the dramatic price drop on ‘Black Monday’, but more importantly in this respect is what happened to the models *during* the turmoil, when these models produced some highly disturbing outputs. At one point, the recommended option prices were larger than the trading price of the underlying asset, defying common sense. These surprising outputs caused some shock amongst market actors at the time, but the apparent failure of these models to perform under stress did not spur any broader reflection on the appropriateness of using such models (Millo and MacKenzie 2009). Furthermore, the crash did little to delegitimize the academic theories on which these models were based, and the Economics prize was awarded Markowitz, Miller and Sharpe three years after the stock market crash (Taleb 2007: 277).

The second performance crisis is the collapse of hedge fund LTCM in 1998, which resulted in a New York Federal Reserve-orchestrated private bail-out to the extent of \$3.6bn. LTCM was a large, sophisticated hedge fund which not only employed the theories of MPT in their trading strategies but also had among its partners two of MPT’s founding fathers, Merton and Scholes. Prior to its collapse, LTCM was held in high esteem by its hedge fund peers and in the sector at large. The fund’s diversification strategies were thought to leave it with little risk exposure, while delivering remarkably high returns during its five-year life.⁴⁰ The fund was considered highly risk averse, going far beyond the VaR model and stress-testing their

³⁹ One correction made by some institutions was to slightly alter the normal distribution in VaR to GARCH (Generalized Autoregressive Conditional Heteroskedasticity), GARCH having a slightly higher likelihood of extreme events.

⁴⁰ Annual returns were on average higher than 30 %.

positions for many unlikely events. However, LTCM's strategy of using high leverage with risk-free arbitrage left it with a derivatives position larger than \$1tn, and the Fed considered an unmitigated collapse of LTCM to be a systemic risk. The failure of LTCM's risk diversification strategies during the Asian and Russian crises was not due to an inherent technical flaw. Instead it was a consequence of the similarities in other funds' positions, which had attempted to copy LTCM's success. As LTCM tried to mitigate its losses by selling assets, other funds were doing the same, and the fire-selling causing markets to implode. The increased margin calls from creditors led to LTCM's collapse (MacKenzie 2000).

These two events reveal important flaws in the use of MPT-based risk management systems. In the case of Black Monday, the failure of option pricing models to perform in a situation where price fluctuations fell outside of a normal distribution illustrates the vulnerability of these models to extreme events. These risk management systems may fail to perform precisely when they are needed the most. The LTCM case revealed the potential problems in using non-dynamic or non-reflexive models which cannot model a world in which many actors are using similar models. Diversification doesn't work if everyone has the same idea. When the investment strategy of a successful fund such as LTCM is copied by many other funds, a "superportfolio" emerges (MacKenzie 2003). If many funds hold almost identical portfolios, the use of similarly programmed models creates 'model risk' in the system (Holzer and Millo 2005).

The lack of critical response following these events, support the arguments put forth by Millo and MacKenzie (2009) and Holzer and Millo (2005) that the organizational and communicative usefulness of these models overshadowed considerations of technical accuracy. Selecting two events and claiming that they 'should have been' performance crises might seem like little more than anecdotal evidence. However, these cases might nevertheless hold merit. When these risk management systems failed so specifically (in the 1987 case) and so spectacularly (in the LTCM case) without the emergence of some form of fundamental reflection either amongst market actors or their regulators, this is evidence of the deep-rooted nature of these actors' belief in the idea and technologies of MPT-based risk management.

4.2.5 'The risk management of everything'

These models, now central to the risk management systems of financial institutions, also became the media through which market information was presented. Even information that was generated directly from the market, i.e. selling prices, was often not presented in absolute numbers but rather as a percentage of the previous day's loss predictions (Millo and MacKenzie 2009: 645). The academic terminology of MPT, including 'beta', 'alpha', and 'Sharpe ratio' became proliferate amongst practitioners, in the financial press, and in regulatory discourse. Market actors spoke of "buying and selling volatility", a phrase that can be seen a legacy of Markowitz' work. As this section has shown, the presentation of risk in a simple quantitative measure served managerial, communicative and auditing purposes, and these models were expanded beyond their intended theoretical scope. These developments can be interpreted as part of a broader trend in risk management, related to the so-called 'audit society' (Power 2005; 2007), wherein 'everything' is risk-managed. The culture of 'you cannot manage what you cannot measure' had taken hold in the sector, where the expression was modified to 'you cannot manage well what you cannot measure accurately'.⁴¹

As these risk management systems have become integral to the day-to-day operations of financial markets, and plausibly played a central role in the financial crisis, understanding how risk models are shaped and used is of great importance. The analysis above illustrates that it is not merely objective, technical evaluations that shape these systems, but that they are subject to the social sphere of practice of which they are a part. Social processes not only determine the legitimacy that these models enjoy, but also have effects on the technical aspects of risk modeling: How a model is programmed, how input measures are agreed upon, which probability distribution and statistical confidence level is chosen, and under whose authority the models are placed. More importantly from a historical perspective, these new technologies brought about a qualitative change to global financial markets, through expanding the range of assets that were tradable, by changing organizational hierarchies within financial institutions and between them and their regulators, and through creating interlinkages between different asset classes and markets that had previously been independent. These new interlinkages became apparent only when the crisis broke, and the correlation figures much of the financial sector operated with turned out to be grossly inaccurate. The developments in financial practice that have been detailed above were viewed positively by regulators. The BCBS chose to explicitly endorse VaR and permitted banks to

⁴¹ Craig Broderick, statement to the FCIC 30.06.10.

use it to calculate their required reserve and capital level. This endorsement created a powerful feedback loop, in that it incentivized the financial sector to further develop their quantitative risk management systems for the purpose of lowering capital levels.

4.3 Institutional dynamics II – a shift in regulatory risk-understanding

The Basel Committee's response to the academic and financial sector developments detailed above forms a very important part of the explanation for Basel II. The choice not only to acknowledge the virtue of the sector's risk management systems in regulatory policy but to furthermore permit the sector to use their internal models to calculate their capital ratios is a remarkable move by the regulators, and represents a radical shift in regulatory methodology. This case of social learning by the Basel regulators – wherein they altered their risk-understanding and their shared conception of means-ends relationships in financial regulation – will be examined here. The section begins by discussing how the BCBS responded to the many criticisms directed toward their major regulatory achievement, the BCA. Conceivably, the Committee had several options in responding to this criticism, and the choice to design Basel II as they did is discussed in the following subsection. In addition to the policy content of Basel II, the policy-making process also exhibits several characteristics worthy of attention, and these features are examined in subsection 4.3.3. The section rounds off by analyzing this case of learning and the shift in risk-understanding that is argued to have underpinned Basel II.

4.3.1 Reacting to the criticism of the BCA

As noted, the criticism directed at the BCA was a potential source of embarrassment for the Committee, particularly as it came so early after the framework's completion. In several of the BIS Annual Reports published during the reform period (1998-2004) the Committee eagerly directs attention to the merits of the original framework, to its successful implementation in more than 140 countries, and to the fact that BCA-rules were being applied to domestic banks as well as international ones. The need to update the accord in line with this extensive application area is repeatedly stressed. Aside from this sign of pride in previous regulatory achievements the general tone in the BIS and BCBS documents during this period is one of acknowledgement to the risk management systems that were being developed in the financial sector. These developments were viewed by the Committee to be overwhelmingly positive, and the Committee explicitly stated their intention to create a framework

‘...rewarding the improvements made in risk measurement and control’ (BIS 2000: 158). The Committee accepted the sector’s claim that the new risk technologies had created qualitatively different financial markets, markets which required a different regulatory approach, with more emphasis on self-regulation:

‘As the financial markets have become more sophisticated and traditional barriers have diminished, the process of supervision has become far more complex. The response of G-10 supervisors has been to try to strengthen market discipline and to create an environment in which banks have positive incentives to operate in a safe and sound manner’ (BIS 1998: 172).

The regulatory emphasis appears no longer to be on creating rigid, top-down-enforced rules, but rather to design an incentive structure that encourages financial institutions to utilize their sophisticated risk management systems to ensure the safety and soundness of their own institutions, and by extension also securing systemic stability. The BCBS appears furthermore to have accepted the criticism that the risk-weighting system of the BCA resulted in capital charges that were inappropriate for a financial institution’s actual risk level. The Committee intended for the revised framework to be ‘more sensitive to the level of risk incurred in banks’ activities’ (BIS 2002: 157), as well as ‘aligning capital requirements more closely with modern risk management practices’ (BIS 2003: 163).

4.3.2 Designing Basel II

Conceivably, the Committee had several options in facing the BCA criticism. One option would be to keep the risk-weighting from the original BCA intact, making the argument that the ‘crudeness’ of the risk-weighting served a purpose in generating capital cushions large enough to withstand unexpected losses. A second option would be to develop the ‘Standardized approach’, i.e. the old BCA, into a more sophisticated and fine-meshed system for risk-weighting. This updated version could perhaps have imitated the standards of the contemporary models in the financial sector, whilst still keeping the calculation of capital ratios under regulatory control. Finally, there is the option which the BCBS chose; to let banks use their internal risk models to calculate capital ratios, subjecting these models to regulatory pre-approval and ongoing supervision. The opacity of Basel policy-making does not permit analysis of the internal discussions within the Committee during the reform period. It is therefore extremely difficult to know which alternatives were on the table, how these alternatives were discussed, or how final decisions were made. The output of this policy-process can nevertheless tell us something about the Committee’s perspective. The choice of the IRB is indicative of the importance the Committee placed on the need to create a second

framework that would not become outdated and irrelevant with the first round of financial innovation. The Committee believed the IRB able to ‘accommodate financial innovation’ (BIS 2000: 158).⁴² The criticism that the BCA was *biased against* effective risk management as it was being practiced in the financial sector appears to have been accepted. The IRB-approach was a way to counter this criticism. In the Annual Report following the 1996-amendment in which the IRB approach was introduced, the Committee stated their view that ‘...the internal models approach appropriately recognizes the benefits of risk diversification strategies and provides incentives for firms to enhance the soundness and precision of their internal models on an ongoing basis’ (BIS 1997: 173).

The Committee appeared to have accepted as valid that the risk-weighting methodologies in the BCA were too crude in comparison with the sophisticated risk management technologies now available to the financial sector. Not only was IRB seen as a good way of utilizing the sophistication of the sector’s risk management systems in the interest of regulation, but the approach would furthermore ensure that any future innovation in the sector would not threaten the second accord as it had the first. The choice of the new three-pillar framework also tells us a great deal about how regulators understood financial markets. Pillar 2 attempted to meet the need for supervision that arose when the calculation of capital ratios (now Pillar 1) had been partially turned over to the sector institutions themselves. In the guidelines for supervision stipulated under the second pillar, the Committee is seeking to establish some degree of control, while abstaining from forcing any form of standardization of the sector’s risk models. The third pillar Market Discipline illustrates the faith the Committee members had in the market’s ability to self-regulate given a sufficient degree of transparency.

The 1996-amendment introducing IRB was incorporated into the final framework after being proposed through the second round of Consultative Proposals in 2001 (Tarullo 2007: 104). In Basel II, the Committee does not merely refer in general terms to the financial sector’s risk models, but chose to explicitly acknowledge the Value-at-Risk model:

‘VaR is an important tool in monitoring aggregate market risk exposures and provides a *common metric* for comparing the risk being run by different desks and business lines. A bank’s VaR model should be *adequate* to identify and measure risks arising from *all* its trading activities and should be integrated into the bank’s overall internal capital assessment...’ (BCBS 2006: 207, emphasis added).

⁴² The ability of the IRB approach to automatically adjust to further innovation in the sector turned out to be less than what the BCBS had hoped for. In the decade following the 1996-amendment, the Supervisory Review principles had to be updated several times, again ‘...in light of the many innovations and developments in banking, financial instruments and the markets within which banks operate, and the methods and approaches used by supervisors’ (BIS 2007: 164).

Given the characteristics of VaR, this endorsement speaks volumes about the Committee's belief in the possibility of quantifying and modeling risk, as they support and encourage that all risks be incorporated into the calculation of VaR. Several scholars argue that this regulatory endorsement had the effect of encouraging banks with VaR to develop it further and ascribe even more managerial weight to it, as well as prompting banks without VaR to adopt it (e.g. Triana 2009; Nocera 2009).

The design of Basel II showed regulatory optimism in the further development of quantitative approaches to all financial risk forms. While the bulk of the CARs were still to be calculated on the basis of credit risk, with some expanded provisions for market risk, the second Basel framework also contains an elaborate policy structure for the treatment of operational risk (OR). By introducing the Advanced Measurement Approaches (AMA), the Committee detailed guidelines for OR, specifying both qualitative and quantitative criteria for its measurement and management. Similarly to the IRB-approach, Basel II creates a three-part approach to OR. The Committee details a Basic, a Standardized, and an Advanced approach to measuring OR where specified criteria serve to qualify banks to these three classes. Also in the case of OR, the Committee leaves a great deal of freedom to individual institutions with respect to model specification: '...the Committee is not specifying the approach or *distributional assumptions* used to generate the operational risk measure for regulatory capital purposes' (BCBS 2006: 151, emphasis added). Again, banks must merely 'demonstrate' the soundness of their chosen approach in order to attain regulatory approval. In the same spirit, the Committee permits banks to use 'internally determined correlations' as inputs to their models (BCBS 2006: 152). This generosity does not however apply should a bank wish to manage risk on the grounds of a different risk-understanding. The BSBS states explicitly that '...[a] bank will not be allowed to choose to revert to a simpler approach once it has been approved for a more advanced approach without supervisory approval' (BCBS 2006: 144). Only under certain (unspecified) conditions, then, could an institution choose to continue treating OR as it had before, if this institution has the human and technical resources necessary to qualify for the AMAs. This treatment of OR marks a significant change in policy. Not only has this category of risk been redefined, from an inherently unquantifiable type of risk to becoming one that can be measured quantitatively, OR had also shifted from being a risk category of concern only to the financial sector itself, to becoming a legitimate regulatory concern. The size of Baring Banks' losses in 1995 made it clear to regulators that OR could have potential systemic consequences, even though Barings' fall did not. This event likely

spurred the newfound regulatory interest in OR. Yet the specific way in which the Committee chose to approach OR, in incentivizing quantification and incorporation into risk models, can be read as evidence of something more than a reaction to Barings. This indicates a change in the philosophical approach to measuring operational risk, and underpinning this is a shift in risk-understanding, emphasizing risk over uncertainty.

The regulatory endorsement of VaR, incentivizing further expansion of risk models, shows the causal arrow in this process also working in the other direction, as was illustrated in the causal model of chapter 1. The incentives found in these regulatory policies created a powerful feedback loop, which served to strengthen the financial sector developments in quantitative risk management which brought about these new regulatory policies to begin with. While the existence of such feedback loops generally makes it more challenging to determine direction and nature of causal relationships, it should be clear in this case that the developments of quantitative risk models in the sector came before these regulatory changes. Yet, once these changes were in place, they had the effect of further pushing the sector developments, increasing these developments' ideational effect on later regulatory policy.

4.3.3 The policy-making process – cooperative, lengthy, and resource-demanding

Besides the content of the policy, the process of designing Basel II can also tell us something about the perspective of the Basel Committee. The most remarkable feature of the policy process is the role granted to the financial sector. The banking lobby is strong on both the national and the international level, yet the Committee chose to engage with the sector more actively than merely being lobbied. A central feature of this cooperation took the form of *Consultative Proposals* (CPs), which were policy drafts that were publicly issued with the aim to elicit comments from the financial sector and other interested parties. In connection with these, several workshops and consultative meetings were held. Three rounds of CPs were conducted and for all three, the responses received were almost entirely from the financial sector and therein mainly from large, individual institutions or from organizations working on their behalf. The sheer volume of responses put severe strain on Basel resources, causing substantial delays in completion. Only two years into the official reform period, the Committee admitted that the size of the undertaking had taken them by surprise: 'This is proving to be the largest and most resource-intensive initiative the Basel Committee has ever

undertaken' (BIS 2000: 158). This statement came before the two latter rounds of CPs and the further delays brought on by these. Each of the CPs inspired more than 200 written comments. The Committee received much criticism in these, forcing them to revise their original proposals and go through new rounds with the sector. In the Annual Reports the Committee states that they have worked to address the problematic issues that were brought to their attention. These issues were eventually resolved to the satisfaction of the financial sector. This form of direct and public engagement with the financial sector, explicitly seeking their advice on issues of risk management, served to blur the distinction made in chapter 2 between interest group and expert group influence over policy. Sector representatives were consulted not merely as an affected party with vested interests in Basel policy, but also as experts on the risk management systems which regulators wished to learn about and utilize in regulatory policy. The ability for the financial sector to influence policy-making in the role of 'neutral experts' is a product of the Basel Committee's learning process and the change is risk-understanding that occurred. However, this form of cooperation between the regulators and the private sector should also be viewed in light of broader public policy trends in the form of public-private cooperation.

4.3.4 A case of learning - Basel II and regulatory risk-understanding

With the IRB the Committee had designed a novel regulatory methodology, one with which the members had no prior experience from national regulatory policy. The fact that the BCBS opted for a novel approach to financial regulation on the international level rather than simply coordinating and standardizing the existing national methodologies, tells us something about the extent to which the regulators had learned from the developments in the financial sector. While the policy aim of Basel II remained the same as in the BCA, the means toward this end were radically altered. With the IRB approach to calculating capital ratios and the second and third pillar designed to support it, the Committee had partially outsourced the task of regulation to the financial sector. The Committee appears to have changed their collective understanding of the means-end relationships pertaining to financial regulation. Although an institution's use of its own risk models to calculate CARs is subject to regulatory pre-approval and ongoing supervisory review, the BCBS were in effect using these internal risk models as regulatory tools toward the policy goal of securing systemic stability. Aside from the limited control exhibited through approval and supervision, these were tools over which the regulators had little effective control, and no formal ownership. Therefore, Basel II represents

a radical change to financial regulatory policy, and arguably also to the practice of regulation in general. The shift from the BCA to Basel II constitutes a strong case of learning on behalf of the financial regulators, even though it would only be labeled 2nd order change according to Hall's (1993) framework, and only qualify as 'adaptation' rather than 'learning' under Haas' (1990) classification of change in international institutions. I nonetheless argue that Basel II represents a radical and fundamental change to the practice of regulation, and that Basel II should be understood as a case of social learning wherein financial regulators changed their risk-understanding. Basel II should furthermore not be seen as a simple case of deregulation which often occurs in long periods of growth and stability. The overall capital requirements were kept at 8 %, and deregulation would not explain the methodological innovation that Basel II encompasses.

Basel II shows that the Committee members shared the belief of both financial scholars and the practitioners in the sector that the ability to quantitatively measure risk had improved as a consequence of the progress made in finance theory and in sector risk management practices. The IRB-approach and the changed approaches to market and operational risk serve to illustrate this belief in risk quantification. The IRB tells us that the Committee considered the sector's risk models to be 'scientific' in the sense that they were objective and neutral, rendering it unproblematic to utilize them as regulatory tools while leaving these models under the sector's control. The regulatory risk-understanding appears to have moved considerably toward the 'risk'-end of the continuum and away from an appreciation of the uncertainty in financial markets. The regulators seem to have believed that the theoretical advances made in MPT, the evolution of risk management practices in the sector, and the developments in securitization and derivatives, had in combination converted financial uncertainty into risk. The changes contained in Basel II fundamentally changed the nature of CARs as a policy instrument. CARs have traditionally been a regulatory instrument with an inherent appreciation of uncertainty in that they serve as cushion against unexpected losses. In Basel II, CARs were transformed into an instrument whose functioning was subject to financial markets being risky rather than uncertain. Capital reserves are no longer an insurance against uncertain, unexpected losses, but rather a cushion against the probabilistic losses estimated by increasingly sophisticated, quantitative risk models. In the decades following the fall of Bretton Woods, financial regulatory policy had been increasingly centered on this one particular policy tool, CARs, as other forms of intervention in markets (e.g. capital controls, credit rationing etc.) had come to be considered inefficient or

illegitimate. Given the central role of CARs in financial regulatory policy, the transformation of this policy instrument represents a transformation of regulatory policy writ large.

The group of economist technocrats at Basel have certainly been aware of and influenced by the theoretical developments within finance theory. However, judging by the response to financial sector developments which is expressed in the policy documents, the stronger path of ideational influence from these theories worked indirectly. The stronger influence worked via the financial sector, and the impact these theories had on the sector's risk management practices. Observing these developments, the Basel regulators learned the virtues of advanced probabilistic modeling of financial risk, and furthermore learned these risk management systems to be superior to their existing regulatory approach to managing systemic risk.

4.4 Interests: The financial sector lobby and Basel II

Although the emphasis in this study is placed on ideas and the different arenas in which they come to play, this analysis does not preclude a role for the strategic behavior of agents. At the heart of financial regulation is a conflict of interest between regulators and the financial sector. The discussion in chapter 2 on the politics of financial regulation emphasized the importance of regulation to the financial sector. The financial sector has a clear (short-term) interest in lax regulatory policy, and will actively seek to influence policy-making in this direction. This section examines how new ideas about risk management came to restructure the relationship between the regulators and the regulated, enabling the financial sector to influence policy in new ways.

Unfortunately, examining the role of the financial sector in the design of Basel II is fraught with difficulty. The methodological discussion in section 2.5 touched on the lack of transparency at Basel and how the opacity of the policy-making processes renders any study of them difficult. The BCBS does not publish any minutes from their meetings nor the meetings of their subcommittees. Only in recent years has the BIS published an organizational chart of the BCBS, showing the title of the 14 subcommittees and the names of their respective chairpersons. In their annual reports during this period and in the final Basel II document, the Committee acknowledges the active participation by financial sector representatives in the meetings and workshops that constitute the Basel II policy-making process. This participation was also stated by the financial sector and reported by the financial press, and it is acknowledged in the literature on Basel II (e.g. Woods 2005; Lall 2009;

Tarullo 2007). Yet apart from the knowledge that the sector participated actively in the policy-making process, little is known about the specifics of this interaction. There is hardly any information available as to which institutions were represented where, when, for what purpose and to which result on policy.

Nonetheless, it is still possible to draw some inferences about the Basel II process. The power to influence Basel policy appears to lie entirely within the paths of ‘experts’ and ‘interest groups’, with close to zero public accountability. This lack of information may even represent a finding in itself, as it is likely this opacity better serves the sector’s interests than that of the economist technocrats in the Committee. Despite the shortage of information then, this section will attempt to draw some inferences from what is known about the Basel II process (derived from the documents themselves, secondary literature based on interviews, and reports from the media) about the way in which the financial sector influenced the policy outcome. I argue that the conventional answer to Basel II (regulatory capture) needs to be nuanced and take into account the ideational ‘priming’ of regulators that occurred. The argument put forth is that the financial sector could play the role of experts in policy-making only because the ideas from MPT were so broadly diffused, had merged with the risk management practices of the financial sector, and had come to alter the risk-understanding of regulators.

Before moving on to discuss the strategic behavior of financial sector parties in relation to Basel II, it is important to note that it is not unproblematic to discuss “the financial sector” as a unified group of actors. The actors present in and around the Basel II process were primarily the large, international financial institutions and their interest organizations. These institutions were also the ones to benefit most from Basel II policies, which arguably greatly disadvantage small and medium-sized financial institutions.⁴³ The term ‘financial sector’ is in the following discussion used to denote large institutions and their interest-groups.

4.4.1 Participation in the role of experts

The new, sophisticated risk management models were viewed by regulators as a way of aligning the sector’s interests with those of the regulators. Through the IRB-approach, the regulators believed they were able to incentivize the financial sector to do what was already in

⁴³ In practice, the IRB-approaches are only an option for the large banks, with the technical and human resources required to support advanced risk management systems. Small and medium-sized banks opposed the IRB in the second round of CPs, but the interests of the large institutions prevailed.

their interest – managing their institutions in a safe way – so as to also serve the regulatory aim of securing systemic stability. In order for regulators to come to this belief, these risk management technologies had to have been considered neutral, and thus not vulnerable to manipulation by the financial sector. Because these models were seen as neutral, financial sector representatives could be invited into the Basel II policy-making process as ‘experts’, using their experience with risk management systems to advise the Committee on how to best utilize these for regulatory purposes. The sector was invited to participate in meetings and workshops, and to comment on proposals. With this new role and subsequent new path through which to influence policy (in addition to lobbying), the financial sector could wield great influence over the design of Basel II. The framing of sector representatives as providers of neutral knowledge and advice, rather than having vested interests, illustrates how far the policy area of financial regulation had moved toward the science-end of the continuum. With access to the policy-making arenas as experts, there was less need for the financial sector to use their resources to lobby the Committee.

The relationship between the BCBS and the financial sector had been close also prior to Basel II, both as a result of the distance of the Committee from national parliaments, and due to personal ties. Beth Simmons (1993: 362) argues that the creation of the BIS itself was ‘...proposed, designed and backed by financiers and bankers, and *not* by statesmen’ (original emphasis). The relationship with the Committee was nursed well by the financial sector, and actively utilized in the Basel II process. In particular the financial lobby organization *International Institute for Finance* (IIF) featured centrally. IIF has traditionally enjoyed a very good relationship with the BCBS. One of the IIF’s co-founders, Peter Cooke, later joined the Bank of England and would become one of the longest-serving chairmen of the BCBS (Lall 2009: 14). The chairman that presided over the Basel II process, the New York Fed chief William McDonough, became a regulator after more than 20 years in the banking industry. At the National Bank of Chicago, McDonough served closely with Charles Dallara, the head of IIF during the period in question. As soon as the reform process started, the IIF set up a Steering Committee for the purpose of working toward Basel II, and furthermore established two working groups to assist the Basel subcommittees (Lall 2009: 14). The sector was highly proactive with respect to the reform process, devoting considerable resources toward influencing Basel II.

4.4.2 Winning conflicts over policy proposals

As experts, the financial sector gained access to policy beyond what lobbying alone could grant it. This enabled sector representatives to make substantive proposals rather than simply use their power to stop proposals from coming to the table or vetoing them once they did. That Basel II was a methodological innovation on the international level is indicative of this power of suggestion. However, this power was not sufficient to stop all policy alternatives disagreeable to the sector from being proposed. On several occasions during the reform period the BCBS issued proposals which representatives from the financial sector subsequently succeeded in fighting back. One such proposal was for additional capital charges on credit derivatives positions. When regulators raised concern over the growing exposure to credit derivatives, and considered requiring large financial institutions to insure against them, this was aggressively lobbied by the sector. In particular the credit derivatives team at J.P. Morgan lobbied against this via US regulators. Their argument was that such a measure was unnecessary and tantamount to insuring against ‘the financial equivalent of an asteroid strike’ (Tett 2009: 71). The International Swaps and Derivatives Association (ISDA) was most aggressive in lobbying this issue at Basel, and successfully convinced the Committee to drop the proposal altogether (Lall 2009: 16). Another conflict concerned the role of the NRSROs. The major NRSRO, Standard & Poor’s, submitted a comment in the third round of CPs in which the company argued that the IRBs were too favorable on large financial institutions. This comment was disregarded in the end, because the Committee viewed it as an interest-based reaction from the NRSROs, given that their position was threatened by the move away from the Standardized approach (Tarullo 2007: 141).

The financial sector was able to participate in the policy-making process both as an interest group and as experts. Yet, the legitimacy of the latter role is partially hinged on its separation from the former, as experts are thought to be neutral knowledge providers, providing a rational evaluation of the means-ends relationships in a given policy-area and of the consequences associated with the different policy alternatives. These evaluations are given without a vested interest – whether personal or group-related. However, the theories and risk models which the regulators had learned to trust, nonetheless enabled a group with clear vested interests to attain legitimacy as neutral experts on risk management.

4.5 Summing up

This chapter has traced the complex process through which a set of ideas from neoclassical finance theory came to influence the design of Basel II. Before moving on to the concluding chapter, this section sums up the analysis as a whole, interpreting Basel II as a case of intellectual regulatory capture. To counter the danger of “cherry-picking” evidence in order to support a preconceived and favored explanation, an alternative interpretation of Basel II is discussed. As the motivation behind this study has been the great financial crisis that began in 2007, a crisis widely associated with the extant regulatory regime, this chapter concludes by offering some thoughts on the links between Basel II and the crisis.

4.5.1 Basel II as intellectual regulatory capture

The previous subchapter discussed the enormous influence the financial sector wielded over the Basel reform process. This power, in combination with the observation that Basel II is beneficial to large banks, has led most of the few studies of Basel II there are to the conclusion that it is a case of regulatory capture: The Basel Committee advanced the interests of the financial sector (and large institutions in particular) rather than the public interest they are supposed to serve. However, this ‘conventional answer’ must be nuanced in order to better understand this policy change. While Basel II fits the label of regulatory capture, there are important dynamics to this policy process that fall outside the realm of this concept. Some have proposed calling what happened to the regulatory regime prior to the crisis “cognitive” or “intellectual regulatory capture” (e.g. Eichengreen 2009; Johnson and Kwak 2009), to stress that the regulators had come to share a set of ideas that made this capture possible. Such a concept ascribes greater weight to ideational components in cases of capture. Basel II is more a case of intellectual regulatory capture, as the influence the sector gained over policy was not merely as a result of their strength as an interest group. Before the financial sector could influence Basel II as experts rather than as an interest group, there was an ideational “priming” of regulators. This ideational priming came in the form of learning, a learning that occurred on observation of theoretical developments in finance theory and new risk management practices in the financial sector. This led regulators to believe in the scientific qualities of these new risk management technologies and that the financial sector had improved its ability to manage its own risk, and furthermore that in managing risk in this way the sector would also ensure systemic stability. Once these ideas about risk and risk management were diffused and accepted by regulators, the financial sector was able to utilize

these shared ideas to gain access to the policy circles as experts, thereby increasing its potential for influence. Abdelal et. al (2006: 700) argue that language can only (successfully) be used strategically by one party if the language is some extent already shared by the other agents. In this case, the financial sector was able to successfully use the terminology of finance theory and risk management systems because these new ideas were already shared by financial regulators. When the sector representatives used the normative label ‘crude’ to describe the BCA and the corresponding term ‘sophisticated’ to denote its own risk management systems, this is likely to have struck particular resonance with an economist Committee sharing the scientific ideals of neoclassical finance theory.

An alternative interpretation of Basel II that is worthy of attention is to see this framework as a case of boom-time optimism. As many financial scholars have documented, deregulation of financial markets often follow long periods of growth and stability in the sector, and precede financial crises (e.g. Kindleberger 1989). Collective euphoria and optimism are well-documented ‘animal spirits’, and regulators are certainly not exempt from suffering them. It is uncontroversial to state that regulation tends to get more lax in periods of growth and relative stability in the financial markets, in particular when asset prices are booming.

Correspondingly, we can expect regulation to be tightened in the aftermath of a crisis. This interpretation can be hard to reject, because it is difficult to distinguish empirically between regulatory changes that are the result of optimism in the stability of financial markets and changes that are effects of a regulatory belief in the increased ability of the financial sector to manage its own risk (the latter need not be accompanied with a belief that financial markets have become less risky). And while there are certainly examples of regulatory changes in the period prior to the crisis that appear to be the result of optimism (such as the increase in permitted leverage ratios), I argue that this perspective cannot fully explain Basel II. The Committee makes explicit that their intent was *not* to lower the overall level of capital held by banks, even though this was what happened. More importantly, the innovative features of Basel II with respect to methodology imply that there was something more at work than deregulation as a consequence of the belief in the stability of financial markets.

4.5.2 Basel II and the financial crisis

The great financial crisis that began in 2007 has inspired this investigation into the radical change in regulation that occurred in the 15-year period leading up to the crisis. The causes

that brought about the crisis are numerous, complex and intertwined. To name a few there were large, global imbalances in savings, and a prolonged period of low interest rates, rendering credit cheap and abundant, and poorly regulated securitization fostered bad lending decisions. Over-zealous innovation in financial products and vehicles, combined with the conflation of commercial and investment banking, created complex and immensely opaque financial markets. Highly leveraged financial institutions were unable to cope with losses when they emerged, and regulation was poor across the board. Every financial crisis is by default a regulatory failure, therefore merely stating that the last crisis was the result of faulty regulation does not further our understanding of the specific causes of this one.

Directly blaming Basel II for the financial crisis faces a problem of chronology, as the framework was first completed in 2004 and the implementation scarcely begun when the crisis broke. However, the amendments to the BCA that were issued throughout the 1990s are more plausibly linked to the forms of behavior in the sector that brought about the crisis. Furthermore, the large financial institutions that participated in the Basel II process took measures to preemptively adjust their business to the new rules (Lall 2009), meaning that Basel II affected financial market behavior prior to its formal completion. Basel capital requirements also greatly favor mortgage lending over corporate lending (the latter required five times the capital), which affected the incentives facing lenders (Friedman and Kraus 2011: 2). The Basel II framework can furthermore be blamed for the policies it did not incorporate. Basel policy for capital requirements made no provision for leverage ratios. This entails that two institutions holding the same portfolio and credit risk exposure would be subject to the same capital requirements, even if one institution was leveraged 10-1 and the other 30-1. Another important factor is the opportunity costs which the lengthy Basel process came at for national regulators (Tarullo 2007: 9). Many (already limited) regulatory resources were tied up at Basel during a critical phase in which many of the problems in global financial markets were mounting.

The most important link between the second Basel framework and the crisis is the set of ideas about risk and risk management that underpins both. Neither the crisis nor Basel II can be understood without a focus on the financial sector's use of quantitative risk models. These risk models failed spectacularly. The crisis revealed that many of the inputs in these models, such as default correlation estimates, were widely off-the-mark. Furthermore, the broad diffusion of similar risk management systems caused many of the large, financial institutions

to act in dangerously similar ways in the worst throes of the crisis in the fall of 2008. While the Basel Committee did not force banks to use these models, there was a strong and explicit support for them in Basel policy. This support worked as a ‘stamp of approval’ on these risk management technologies, which is likely to have lulled any criticism of them, internally or from external observers. The sector’s expectation that CARs could be lowered through the use of such models also gave individual institutions strong incentive to use risk models. The criticism of quantitative risk models post-crisis has been met with a common line of defense in the form of “You can’t blame math”.⁴⁴ This is certainly true in the sense that it is humans, not computers, who do risk-modeling, and the crisis is the result of a series of decisions made by humans. However, the risk models and the new quantitative financial practices of derivatives and securitization helped bring about the crisis through creating both an intellectual and a technological realm in which certain actions could take place.

The concept of *model risk* may be a useful way to understand the crisis. Model risk is a term used in the financial sector to denote the potential risk of loss to a financial institution that stems from the incorrect specification of a risk model or the use of a correctly specified model for the wrong purpose (Izquierdo 2001: 72). Model risk can also be viewed systemically, and from a sociological perspective. It is then defined as the second-order dangers in the financial system that emerge as a result of the wide-spread use of similar quantitative risk models (Holzer and Millo 2005: 224). As financial models lack a dynamic or reflexive component – they’re unable to model a world in which other actors are using similar risk models – the use of models can create their own form of systemic risk. This dual use of the term model risk requires that the claim that risk models failed must be explicated and nuanced: One may criticize the specific parameters of a given model for being wrong, and one may criticize a more fundamental flaw in the use of a model. A distinction between these two aspects should be made in any discussion of such models, as you can make one criticism without the other, and you can make both. In hindsight, the first criticism is uncontroversial. The parameters VaR operated with, with respect to correlation and loss predictions, were clearly wrong. Yet these factors can be partially fixed within the existing confines of the model. However, I would further argue that the reliance on quantitative risk models in the financial sector and for regulation is in itself highly problematic. Because these models are precisely that, models, they will never fully capture the complexity of uncertain financial markets. At best, models

⁴⁴ Gregg Berman of Risk Metrics, quoted in Nocera (2009).

can illustrate the assumed relationship between a select few factors, given a set of unrealistic assumptions, and in so doing such models can be very useful. However, without qualitative judgment and a keen appreciation of the limitations of modeling, a reliance on quantitative models can lead to erroneous inferences about the way financial markets work. In the period prior to the crisis, the inferences drawn from risk models led to imprudent lending decisions and (in hindsight) high-risk behavior, mistakes that were ultimately paid for by tax-payers. The dangers associated with using risk models in this way should be of particular concern to regulators. Given their task of ensuring systemic stability, regulators should be especially focused on the large, rare events that by definition fall outside the parameters of risk models.

Chapter 5 Conclusions

5.1 Argument in sum

The use of models proprietary to the regulated as regulatory instruments represents a Copernican turn not only to financial regulation, but arguably also to the practice of regulation in general. This study has aimed to show how new ideas about risk played a role in the making of Basel II. By process-tracing, the analysis has identified four central aspects of the process. First, the inherent properties of these ideas include a specific way to define and understand financial risk. A conceptualization of risk as the volatility of return made it possible to quantify and model risk probabilistically. Such an understanding lent itself to understanding risk in the broader meaning in much the same way. The economists at Basel were likely influenced by these theoretical developments, given the broad legitimacy bestowed upon these ideas in academia and beyond. However, the stronger path of influence from ideas to policy is argued to have worked indirectly, in the way these ideas met fields of practice in the financial sector. The second aspect of this process was thus when the theoretical risk measurement in economic theory evolved into new risk management practices in the sector. The all-encompassing risk management systems served managerial needs and facilitated better communication between financial institutions, benefits that trumped concerns over accuracy. The third part of this process is the regulatory response to the evolving risk management practices in the financial markets. The observation of the ongoing changes in sector risk management was the primary source of inspiration behind the BCBS' decision to reform the BCA. The Committee appears to have learned that these new risk management systems were suitable as regulatory instruments aimed at securing systemic stability. The emphasis on quantitative, probabilistic modeling of financial risk indicates that the regulators had altered their risk-understanding toward a greater emphasis on risk (proper) over uncertainty. Once these new ideas about risk had come to be shared by regulators, the financial sector used them strategically to achieve beneficial regulation, which constitutes the fourth aspect of this process. Already enjoying a close relationship with Basel regulators, the financial sector was included in the Basel II process under the guise of being 'experts' on risk management. As the risk models were viewed as scientific, they had the effect of recasting the relationship between the regulators and the regulated, enabling the latter to participate in policy-making as neutral experts rather than as a party with vested interests in the outcome. The role of experts opened a new path of influence over policy for the financial sector, reducing the need to lobby its interests.

In light of the great financial crisis, it should be unproblematic to state that Basel II served the interests of the regulated rather than the public. The quantitative models severely underestimated the risks that financial institutions were running, and the use of internal ratings served to systematically lower the capital cushions of large financial institutions. However, labeling Basel II a case of regulatory capture does not further our understanding of the conditions under which this capture took place. In order to fully understand how this radical change to policy came about, we must pay attention to the risk-understanding of financial regulators. This analysis has attempted to identify the mechanisms and processes through which a particular set of ideas could affect policy, through the way these ideas met a field of practice in the financial sector. These risk management practices altered the risk-understanding of financial sector practitioners and their regulators, who both increasingly came to view financial markets as a world of known unknowns rather than unknown unknowns. This ideational priming of regulators enabled the sector to subsequently influence the Basel II process in their favor. Basel II is therefore more a case of intellectual or cognitive regulatory capture. The widely-shared ideas about risk management created a realm of possibility in which the forms of behavior that brought about the crisis could take place. By way of conclusion some implications of these findings are discussed.

5.2 Theoretical implications

While this has been a single-outcome study, the dynamics of the identified process are not necessarily unique to this case. There are four more general insights that may be drawn from this analysis which concern the study of financial markets, regulation and public policy. The first is that although the risk management systems that have grown to play a very important role in global financial markets may be highly formalized, drawing on theories from the natural sciences, the context in which they are used is social. The social dynamics in which these technologies feature therefore become important in understanding their effects. Which actors get to determine the modeling, the inputs and the interpretation of outputs? How is legitimacy granted to these decisions and which qualifications are accredited, both within a particular organization and in the sector at large? In order to understand how these quantitative, ‘hard science’ models shape financial markets it is important to ask and seek to answer social science questions such as these.

The second insight concerns the study of policy-making and learning. The Basel Committee's reaction to the academic and financial sector developments represents an interesting case of learning, but one which the standard theories of organizational learning cannot do full justice. Because the policy goal remained the same, this case of learning would fly under the radar of much of the existing literature. In the case of Basel II, I would argue that the regulators have radically altered their conception of their regulatory endeavor, i.e. the 'policy paradigm' has shifted. Thus, substantial shifts in policy paradigms may occur even in cases where the policy aim is unchanged. A narrow focus on policy goals as the primary indicator of learning and change may lead us to ignore the occurrence of large policy changes, which may not only constitute interesting theoretical cases, but may also be policy changes with significant consequences.

The third insight concerns the 'science continuum' model that was introduced in chapter 2 as a proposed backdrop against which to analyze policy areas. If the analysis is viewed in light of this model, the issue-area of financial regulation (already a relatively 'scientific' policy area) appears to have moved further towards the science-end of the spectrum. Above all this move is indicated by the framing of the financial sector as experts rather than as an interest group. The case of Basel II indicates that ideas play a greater role in policy-making than merely as an intermediate explanatory variable. Ideas are central to the definition of a policy problem, to the prescription of acceptable solutions, and also in framing the legitimate actors in a policy-making process. Analytically juxtaposing scientific and political policy issues may be useful in studying how the discursive features of a policy field affect the characteristics of the policy-making process.

Finally, and most importantly, is the concept of risk-understanding. As should be evident from the analysis above, the way in which regulators understand their regulatory object in terms of risk and uncertainty matter for the type of policy they produce. It may affect which policy instruments are considered legitimate, efficient and sufficient in their regulatory endeavor. All policy changes need not be the result of a changed risk-understanding amongst policy-makers, but if there is a substantial shift in risk-understanding it is likely that policy changes will follow. Students of policy change should therefore be open to this as a possible factor, especially in policy areas wherein risk management is central.

5.3 Regulating risk or uncertainty?

While many of the causes behind the financial crisis have been addressed in regulatory reform proposals, thus far the belief in quantitative risk management appears to stand ground. The new Basel III framework will drastically raise capital requirements, yet the underlying methodology pioneered in Basel II remains intact. The incentive structure still favors the use of internal risk models to calculate risk exposure. Although Basel III can be read as an acknowledgment that capital ratios were too low for the real risk levels facing financial institutions, the methodology still speaks of a belief in risk as quantifiable and possible to model probabilistically. In fact, academic and regulatory effort is now being applied to the development of a precise, quantitative measure for systemic risk in the belief that this will make financial supervision more efficient. Lo (2009: 10) proposes a measure for systemic risk which is a weighted aggregate of leverage, liquidity, correlation, concentration, sensitivities and connectedness. Quantitative measures of these would only be possible to attain in a world of risk. In other words, the crisis does not appear to have significantly altered the risk-understanding of financial regulators or other actors in financial markets. The financial markets are still understood as a world of known unknowns, and regulated accordingly. If quantitative risk models continue to be used the way they have been, then the problems of model risk that were identified in the previous chapter remain a threat to individual institutions and to the stability of the financial system.

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